

# POPULAR MECHANICS

MAGAZINE

REGD. TRADE MARK, GREAT BRITAIN, NO. 410426



**Twin Outboards**  
*page 160*



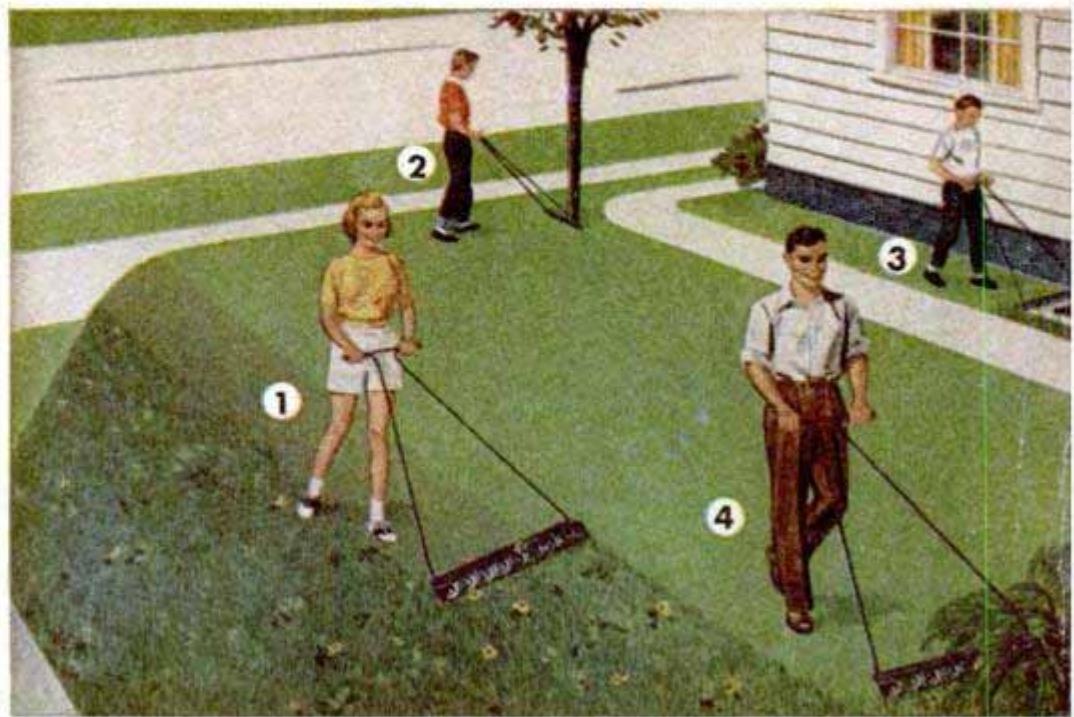
They Outsmart Death in the Air  
*What Owners Say About*  
**the FORD SIX**  
*For the Craftsman*  
**GUARD YOUR CAR FROM THIEVES**

# Only the Incredible MONTAMOWER

TRIMS AS IT MOWS - IN ONE EASY OPERATION

1. The MontaMower smoothly cuts standard 16" swath through grass, dandelions, and tall lawn weeds (including those that pop up with a conventional mower to cause you extra work). Operates easily and efficiently . . . even on steep terraces!
2. It is actually "Two-Tools-In-One" . . . an efficient lawn mower and a very fast lawn trimmer. It cuts and trims right up close to trees, etc.
3. It's ideal for cutting along walls, fences . . . window wells . . . between closely set shrubs . . . with practically nothing left to be trimmed by hand!
4. You can mow and trim under overhanging foliage and shrubs without shearing leaves and stems.

Greatest  
ADVANCEMENT IN OUR  
30-YEAR HISTORY!



## AMAZING NEW-TYPE Cutting Discs...

RESULT OF 7 YEARS OF INTENSIVE RESEARCH

### HERE'S HOW IT WORKS

Eight pairs of newly designed, Self-Cleaning and Self-Sharpening, precision made and fitted, tool steel cutting discs revolving toward each other gather the grass and cut it cleanly with a shearing action at the intersection of the discs. Newly designed handle with comfortable form fitting rubber grips. Easily and quickly adjustable to change cutting height of grass.



Now . . . it's time for you to get all the facts about MontaMower's sensational performance and extended trial offer! The new model has been amazingly improved through the use of new-type cutting discs which employ a new, exclusive and patented shearing principle that cuts grass and lawn weed as smoothly and evenly as a pair of keen-edged shears. Trims-As-It-Cuts, leaving practically no back-breaking, time-consuming work to be done by hand. Hundreds of thousands in use. WRITTEN GUARANTEE . . . you alone be the sole judge. Act NOW!

**TRY IT ON YOUR OWN LAWN**  
**EXTENDED TRIAL PERIOD . . . ON APPROVAL**

MontaMower Distributing Co.—Sales and General Offices  
P.M. 34 KEELER BLDG., GRAND RAPIDS 2, MICHIGAN

Gentlemen: Kindly send me (FREE OF CHARGE) completely illustrated descriptive literature, price, guarantee information, and full details of your amazing "Extended Trial On Approval Offer".

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

FREE

# Don't get caught with your **Battery down**



WHEN your battery "gives" out—you have to "pull" out! Don't take chances. Stop in at your Goodyear dealer's today—have your battery checked free with the portable, accurate, Goodyear All-Purpose Tester. It's the SURE way to avoid delays caused by battery failure. While there—ask about the Goodyear Dry Proof Double Eagle Batteries, too.

Goodyear, Battery Dept., Akron 16, Ohio



Double Eagle—T. M. The Goodyear  
Tire & Rubber Company, Akron, Ohio

# GOOD YEAR

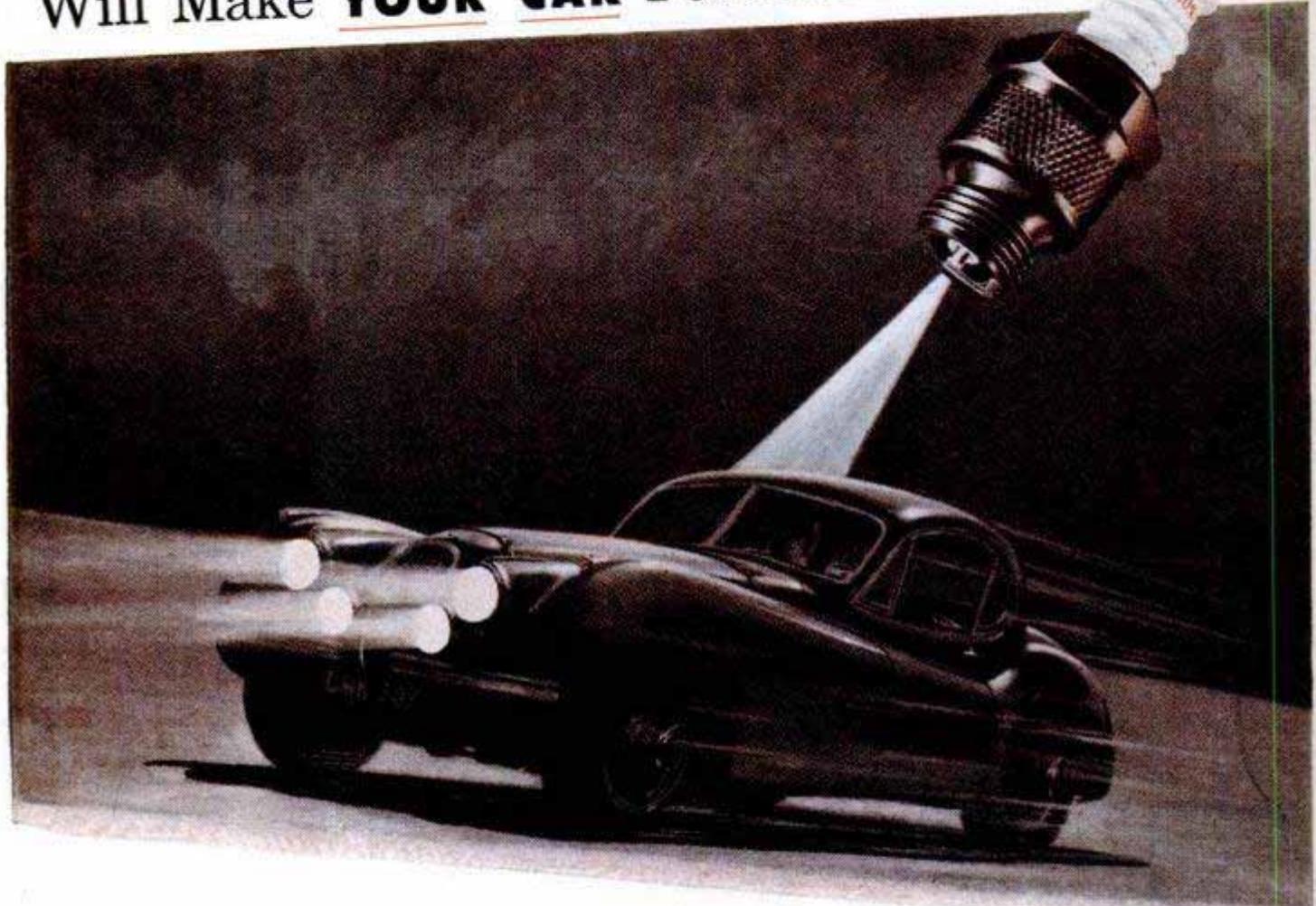
DRY PROOF • DOUBLE EAGLE BATTERIES

We think you'll like "THE GREATEST STORY EVER TOLD"—every Sunday—ABC Radio Network  
THE GOODYEAR TELEVISION PLAYHOUSE—every other Sunday—NBC TV Network

Spark Plugs that Perform LIKE THIS—

**100.31 M.P.H. FOR 7 DAYS AND 7 NIGHTS**

Will Make YOUR CAR Perform Better!



The magnificent sustained performance of a stock Jaguar coupe, 16,852 miles in one week, was established with Champion Spark Plugs—standard equipment for all Jaguar cars. This car is a duplicate of the Jaguars that have become a familiar sight on American streets and highways.

The Champion Spark Plugs used in this record-smashing endurance run are identical—in materials, design and workmanship—to the Champions available for your car. More overpowering evidence that Champions can give you the best performance and dependability of which your car is capable! So try a set of Champions today! You will never again be satisfied with ordinary spark plugs.

CHAMPION SPARK PLUG COMPANY, TOLEDO 1, OHIO



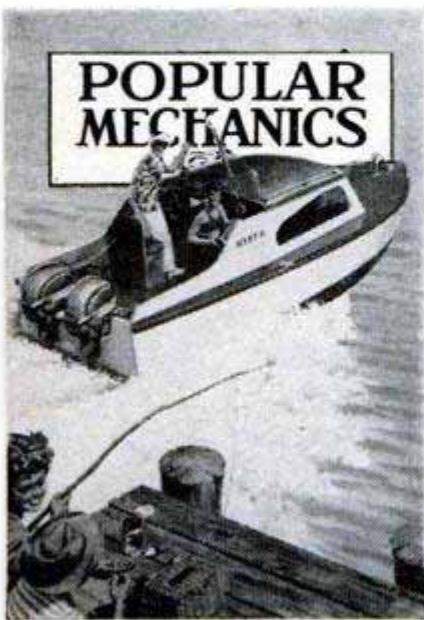
*Better by Far for EVERY CAR Regardless of Make or Year*

# Popular Mechanics Magazine

Registered in U. S. Patent Office and Canada

H. H. WINDSOR, Founder

H. H. WINDSOR, JR., Editor and Publisher



## this month's cover

HANG ON to your line—there goes Harris Ewald in his cabin cruiser! Fifty horses churn the craft through the water, for Ewald has come up with the novel idea of mounting two 25-horsepower outboard motors behind the 18-foot boat. Now he skims along Lake Michigan at 30 miles per hour to the throb of the twin putt-putts. It's all a part of a bigger story—the fact that cabin cruisers no longer are a novelty. Once too high-priced for the average man, cruisers now cost less than the family car and are owned by a lot of average men. The yacht-club set has changed in the past few years—it's been invaded by these everyday sailors with their outboard motors. The broad-beamed outboard cruiser now reigns on rivers, lakes and oceans. It's not unusual for a family to take a 1500-mile voyage in a high-riding little craft. You'll find details of Ewald's cruiser on page 160, followed by a preview of some spanking new boats you'll be seeing in near-by waters soon

Published monthly by Popular Mechanics Company, 200 E. Ontario St., Chicago 11, Ill. H. H. Windsor, Jr., president; William Harrison Petridge, vice-president; D. F. Windsor, vice-president and secretary-treasurer; H. H. Windsor III, vice-president; Clover L. Perkins, advertising manager; Alan M. Deyoe, circulation manager. Single copy in the United States and Canada, 35 cents; subscription rates in the United States and possessions, Canada, Philippines and countries of the Pan-American Postal Union, 1 year \$3.50; 2 years, \$6.00; 3 years \$8.00. To all other countries add \$1.00 a year over United States prices for overseas postage. If you plan to move, notify us at least 30 days in advance so you will not miss an issue. Give both your old and new addresses. Entered as Second Class Matter, September 15, 1903, at the Post Office at Chicago, Illinois, under Act of March 3, 1879. Entered as Second Class Matter at Post Office Dept., Canada. Registered as Second Class Matter at the Post Office at Mexico, D. F., Mexico, June 20, 1950. Copyright 1953 by Popular Mechanics Company. Copyright under International Copyright Union. Copyright in France. All rights reserved under Pan-American Copyright Union. Printed in the United States of America.

Volume 99

APRIL 1953

Number 4

Address all communications to:

200 East Ontario Street, Chicago 11, Illinois

Managing Editor.....	Roderick M. Grant
Assistant Managing Editor.....	Wayne Whittaker
Shop Notes and Crafts Editor.....	James R. Ward
Radio-Television, Electronics Editor.....	Frank L. Brittin
Associate Editor, Aviation.....	Aubrey O. Cookman, Jr.
Associate Editor.....	Clifford B. Hicks
Associate Editor, Automotive.....	Arthur R. Railton
Assistant Shop Notes and Crafts Editor.....	Wayne C. Leckey
Assistant Editor, Makeup.....	John C. Dalen
Automotive Correspondent.....	Siler Freeman
Art Director.....	Frank Beatty
Assistant Editors	
W. Clyde Lammy	Leonard F. Hilts
Theodore A. Daum	Elsie L. Domin
Frank N. Stephany	
Elliott H. McCleary	
Eastern Editor.....	Richard F. Dempewolff
Empire State Bldg., Room 2906, New York City 1	
Western Editor.....	Thomas E. Stimson, Jr.
302 23rd St., Santa Monica, Calif.	
London Manager.....	Douglas W. Wedderspoon
Eagle House, Jermyn St., London S. W. 1, England	
Director, Bureau of Information.....	Allan Carpenter
200 E. Ontario St., Chicago 11	

## IN THIS ISSUE

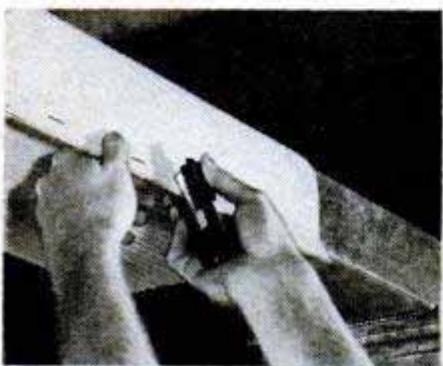
They Outsmart Death in the Air - - - - -	81
Want to Borrow a Porcupine? - - - - -	89
UN's World Capitol - - - - -	97
Four Wheels Waiting for a Face Lifting - - - - -	106
Recipe for the Farm Mechanic: Take a Jalopy - - - - -	114
This Curiosity Shop Beats the Dickens - - - - -	124
Trouble Shooters for the TV Skyway - - - - -	132
Owners Report on the Ford Six - - - - -	138
Here's the Home I Built for \$3500 - - - - -	147
Antiques From a Modern Shop - - - - -	162

## For the Craftsman

Bookshelf Turns Snack Bar - - - - -	169
Electric Drill Powers Mower - - - - -	172
36-in. Model of the SS United States - - - - -	179
Build "Wild Goose"—a Sturdy Overnight Trailer - - - - -	187
Overhaul Your Bike - - - - -	199
Stolen—\$19,000,000 - - - - -	203
Shaper Jigs for End Cuts - - - - -	210
Can You Saw Straight? - - - - -	212
It's Fun to Tool Metal - - - - -	218
Shopping for Tools - - - - -	224
Radio, TV and Electronics - - - - -	227
Clinic for Homemakers - - - - -	234

Other items, and manufacturers of available products described,  
are listed on pages 12, 14 and 16

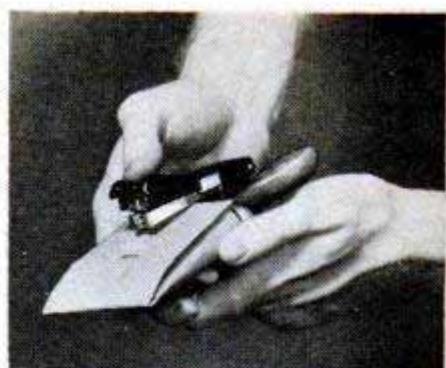
# FASTEN IT FASTER



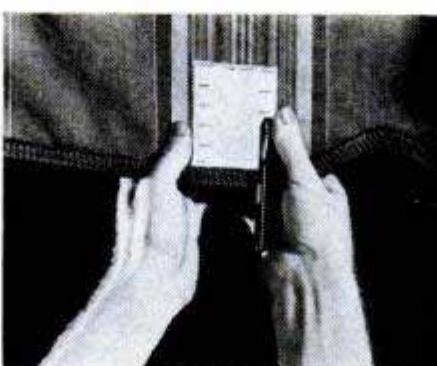
**STOP HEAT LOSS** by covering warm air ducts with asbestos paper. *Bostitch B-8* makes it an easy, one-night project.



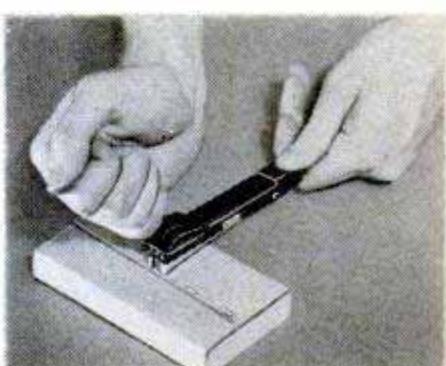
**PLASTIC SCREENING** can be tacked to frames quickly and easily with *Bostitch B-8* used as tacker.



**PUT WRAPS** on your paint brushes between jobs. *Bostitch B-8* has removable base for getting into tight places.



**TORN CANVAS** on awnings or furniture can be mended by stapling parts with *Bostitch B-8*.



**SANDING BLOCKS** are easy to make when you tack sandpaper to blocks of scrap lumber with *Bostitch B-8*.



**KEEP PATTERNS IN PLACE** by stapling them to material to be cut. Lift them easily with *Bostitch B-8*'s staple remover.



**\$2.85**

Slightly higher in  
the West and Canada

IT'S A STAPLER!  
IT'S A TACKER!  
IT'S A STAPLING PLIER!  
IT'S A STAPLE REMOVER!

*Bostitch gives you the only fasteners  
with staple remover attached.*

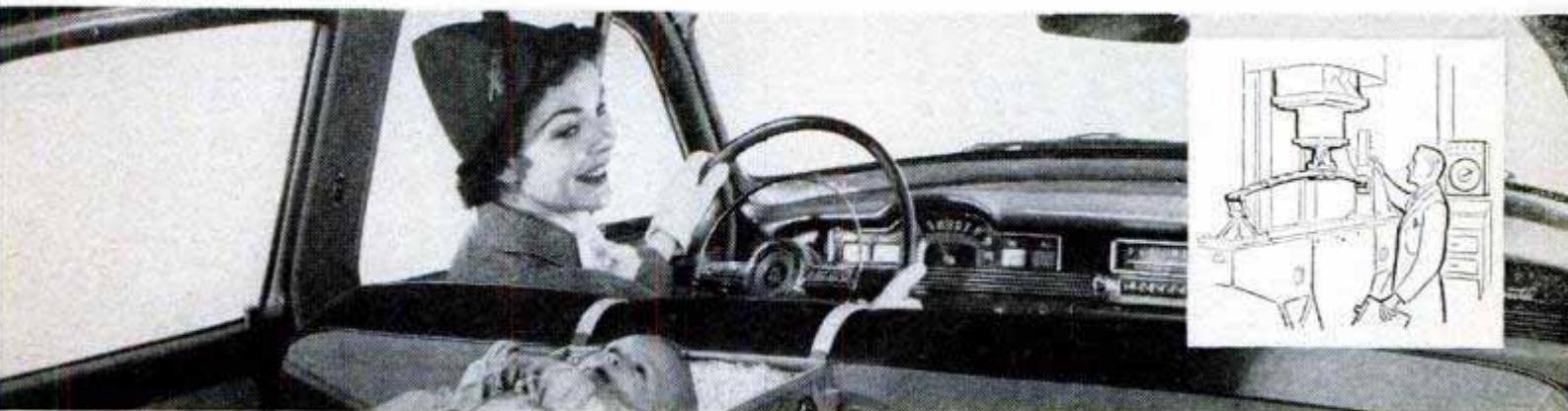
with the **Bostitch B-8**  
WITH REMOVER

The **Bostitch B-8** is one of 800 Bostitch staplers and stitchers made for home, office and industrial use. For help in solving production line or shipping room fastening problems, write: **BOSTITCH**, 544 Mechanic St., Westerly, R.I.

**BOSTITCH<sup>®</sup>**  
*AND FASTER*  
fastens it better with wire

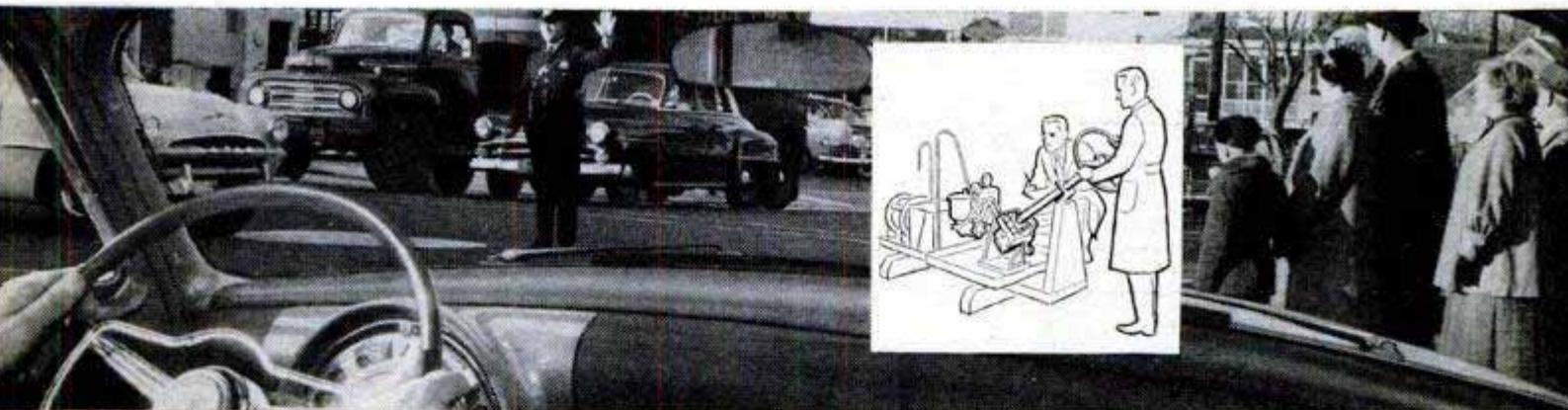
# EASIEST TO DRIVE AND THIS IS WHY

*There are engineering reasons for every benefit  
your new Chrysler Corporation car offers you*



**SITTING IS A NEW EXPERIENCE** in the 1953 Plymouth, Dodge, De Soto and Chrysler. Here you ride comfortably relaxed, not all hunched up. On Comfort-Level seats, you can wear your proudest hat without ducking!

**THERE ARE REASONS.** Testing and studying for years, Chrysler Corporation engineers and coachwork designers developed a new way to "spring" your car that makes your ride steadier, more truly balanced than was possible before. There's plenty of head and shoulder room. Your seeing area has been increased as much as 15%, too.



**EASY DOES IT.** At a tangled downtown intersection, or out on the bounciest country road, you steer without strain. Available on Chrysler and De Soto, full-time Power Steering makes steering your car easy as dialing a phone.

**THERE ARE REASONS.** Careful oil pressure tests are part of the behind-the-scenes development of full-time Power Steering. This popular Chrysler Corporation exclusive relieves you of 80% of your normal steering effort. And another Chrysler advance, Power Braking, uses engine power to make braking easier and quicker for you, too.

*Back of every development that makes your Chrysler Corporation car so easy to drive*

*are the talent and experience of engineers, scientists and technicians with the one aim—  
to produce fine cars of superior worth.*

**CHRYSLER CORPORATION**

*engines and builds Plymouth, Dodge, De Soto, Chrysler Cars & Dodge Trucks*

# "PYROIL

*makes every ride  
a JOY ride!"*

● You'll get a lot more pleasure out of your car when you add Pyroil to your gas and oil. It costs so little to add Pyroil—and in return you're getting priceless protection for expensive engine parts. When you add Pyroil you're getting improved lubrication and "quick starts." You're preventing wear-and-tear caused by metal parts rubbing together because Pyroil cushions piston rings and cylinder surfaces with a clinging coating of oil at all times. You're getting a clean motor, because Pyroil rids the motor of sludge and gums, and keeps it clean.

Pyroil keeps your car out of the repair shop and keeps you out of the "red." Next time you stop for gas or oil—add Pyroil. It will make every ride a joy ride—it will add more pleasurable miles to your car.

## PYROIL FOR AIRCRAFT ENGINES

Use Aircraft Pyroil B for lubricating oil, Aircraft Pyroil A for gasoline.

**GIVEN!** An attractive Pyroil metal savings bank—takes coins up to 50¢ pieces. **MOTORISTS,** it's yours for the asking—sent postage paid.

Manufactured and Guaranteed  
by Pyroil Company, 203 Pyroil  
Bldg., La Crosse, Wisconsin

Canadian Distributors:  
Central Purchasing Agencies,  
Ltd., Toronto, Ontario



**PYROIL COMPANY**  
203 Pyroil Bldg., La Crosse, Wisconsin

I want my car to last and run properly. Please tell me more about Pyroil and how it can accomplish this for me.

Name \_\_\_\_\_

Address \_\_\_\_\_

City or Town \_\_\_\_\_ State \_\_\_\_\_



in this corner.....

## THE EDITORS



### To the Editor:

At the last executive-committee meeting of the U. S. Junior Chamber of Commerce, a plan for building motor units to mechanize wheel chairs—described in your March issue—was presented for our consideration as a national project.

I am pleased to inform you that it was unanimously adopted as part of our public-health program for 1953, and all our chapters throughout the United States will be encouraged to participate in the building of these units.

We are deeply indebted to your publication for making possible the "wooden lung" project which proved so successful last year. More than 700 of our chapters requested plans for building the lung and I'm confident the mechanized-wheel-chair project will be received even more enthusiastically by our members and the public at large.

Horace E. Henderson, Pres.,  
U. S. Junior Chamber of Commerce.

### To the Editor:

In reading your article in the February issue titled, "Titanium—Tough Guy of the Lightweights," by Ewart Thomas, the statement is made, "It can be spot-welded but not fusion welded." The writer would like to draw your attention to the last half of the statement which is incorrect. If Mr. Thomas will read the writer's article entitled "Forming and Welding Titanium" appearing in the November issue of "The Welding Journal," he will have a good idea of how titanium can be welded.

Titanium at the present time is available in several different alloys and some of these alloys are very difficult to fusion weld. The statement might be made that only commercially pure titanium can be welded in production at the present time.

The writer enjoys reading your magazine and hopes to read many more.

Francis H. Stevenson,  
Chair Aircraft and Rocketry,  
Welding Panel,  
Los Angeles Section,  
American Welding Society.

### To the Editor:

The wooden lung constructed by the East St. Louis Junior Chamber of Commerce

(Continued to page 8)

# This FREE SAMPLE LESSON will prove you can become an expert BOOKKEEPER . . . ACCOUNTANT OR C.P.A.

## FREE SAMPLE LESSON

We offer you this free sample lesson so that you can prove to yourself that you CAN master Accountancy—quickly, thoroughly—in spare time at home.

You will see exactly how LaSalle's famous "Problem Method" works . . . how you are led step-by-step through actual accounting work—learning by doing and not by study of theory alone. First you tackle easy problems, then more difficult ones—until soon you master them all. And at every step you have the close personal guidance of LaSalle's large staff of C.P.A. instructors.

Nearly 10%  
of all C.P.A.'s  
in the U.S. have  
been trained by the  
LaSalle Problem  
Method

## GOOD-PAY JOBS IN 5 BIG FIELDS

If you were an expert accountant right now, chances are you would find yourself among the highest-paid of all professional men and women. Surveys show that accountants earn more than those in other major professions.

There are five big fields of opportunity open to Accountancy-trained men and women . . . opportunities that are wide open and highly inviting, offering maximum income and job security in good times or bad. And under LaSalle's "Problem Method" you can start earning while still learning—either in spare-time or full-time employment . . . or in business for yourself with no capital required.

Get the latest information by sending for our 48-page book, "Accountancy, the Profession That Pays" . . . plus free sample lesson. The coupon at right will bring both to you without cost or obligation. LaSalle Extension, 417 S. Dearborn St., Chicago 5, Ill.



This well-paid LaSalle-trained Accountant's success could be yours.

**HIGHER ACCOUNTANCY**  
*By the LaSalle Problem Method...*

• Practical Accounting  
Assignment 1  
THE BALANCE SHEET

QUOTE from the "Journal of Accountancy," the authoritative organ of the professional accountants of the United States:  
"The accounting profession is probably the best paid in the world. If there be a profession in which the average compensation is higher, it is not known to us."  
There is need for accountants. There is no prospect that the supply will ever exceed the demand within the lifetime of even the youngest of us."

LaSalle Extension University  
A Correspondence Institution  
CHICAGO

THIS SAME LESSON HAS STARTED HUNDREDS OF THOUSANDS toward well-paid accounting careers—in business, government, and as C.P.A.'s. Even without previous knowledge, progress is rapid—earning power climbs fast. This sample lesson shows why.

IF you have been envying the high incomes and good jobs enjoyed by thousands of men and women Accountants today... incomes ranging from \$4,000 to \$10,000 and more per year... why not launch such a career for yourself?

Do you doubt that you can?

Then let us send you—without cost or obligation—the same Lesson Number One with which LaSalle has started several hundred thousand men and women toward successful accounting careers. We want you to see for yourself how this remarkable method, originated by LaSalle, makes Accountancy simple, interesting, practical, and certain . . . how it leads you step-by-step to a complete mastery of Accounting—and on up to the coveted degree of Certified Public Accountant if you so aspire.

It doesn't matter whether you've had previous bookkeeping experience, or whether you don't know a debit from a credit. Whether you wish to qualify as an expert bookkeeper, advanced accountant, cost accountant, auditor, government accountant, income tax specialist, or public accountant . . . you'll find in LaSalle's Problem Method the exact plan to prepare you rapidly and inexpensively—in spare hours at home—without losing a day from your present job.

So right now, today . . . if you are an adult, employed, and earnestly ambitious for rapid advancement in this highest-paying of all professions . . . send your name and address on the coupon below. We'll send the free sample lesson—plus our 48-page book outlining today's career opportunities and how you can qualify for them. A coupon like this has started many thousands toward greater success. It can do the same for you. Mail it today!

----- Clip Coupon . . . Mail TODAY! -----

LaSalle Extension University . . . A Correspondence Institution  
Dept. 464-H, 417 S. Dearborn Street, Chicago 5, Illinois

YES, I want to see how LaSalle's "Problem Method" works . . . how I can qualify for high-pay Accountancy positions. Send Free Sample Lesson—also your 48-page book, "Accountancy, the Profession That Pays" . . . all without cost or obligation.

Name . . . . .

Street Address . . . . .

City, Zone & State . . . . .

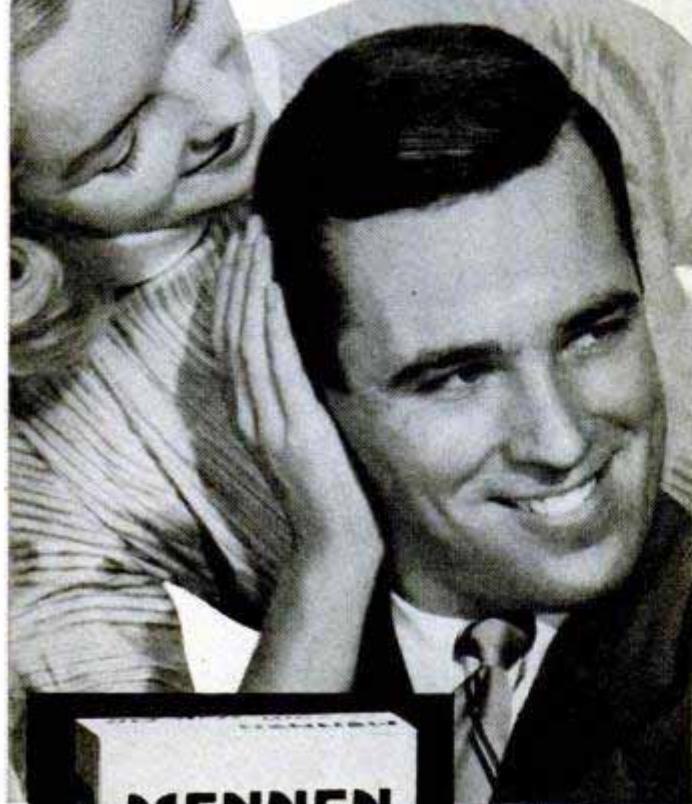
Present Position . . . . .

This One



8UDL-BJ2-H5S1

# Mister—can your hair pass the CARESS TEST?



**MENNEN**  
*Cream Hair Oil*  
FOR MEN

53¢  
20% more  
for your  
money  
CONTAINS LANOLIN  
ALCOHOLIC. NET 5 FL. OZ.  
THE MENNEN COMPANY  
NEW YORK, NEW YORK, U.S.A.

GROOMS  
HAIR,  
NEVER  
GREASES  
IT!

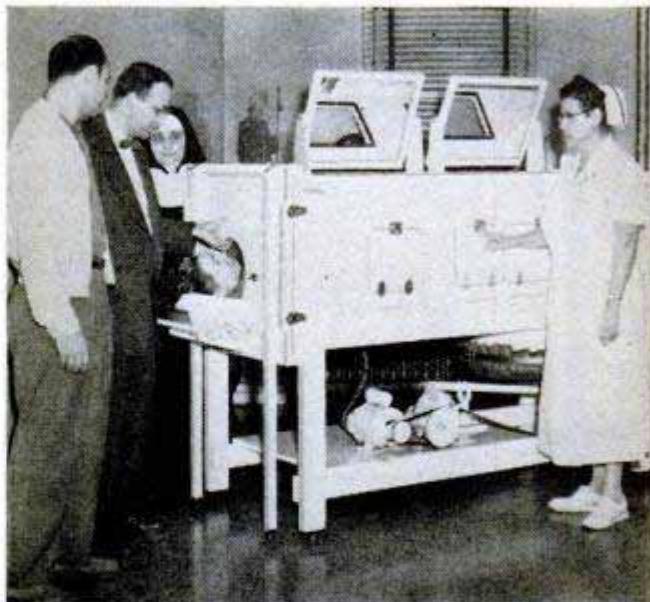


Do you shrink from that moment when she runs her fingers through your hair—afraid she'll find it oily? Then switch today to Mennen Cream Hair Oil. Lightly blended—leaves no trace. Contains lanolin. Helps remove dandruff scales, relieve dry scalp. Get it today—pass her Caress Test tonight!

**MENNEN**  
*Cream Hair Oil FOR MEN*

(Continued from page 6)

and presented to St. Mary's Hospital of East St. Louis . . . received its first test on Dec. 14 when a young mother suffering



from a respiratory failure was placed in it for 1½ hours. It is credited with keeping her alive.

The patient seen in the lung [above] is a polio patient and has been in an iron lung for four years. She consented to try out our lung for the picture.

Thomas E. Prosser III, D.D.S.,  
Chairman, Public Health Committee,  
Illinois Junior Chamber of Commerce.

*Editor's Note:*

Plans for the wooden lung, described in PM (Jan. 1952) were furnished by Popular Mechanics Magazine to the U. S. Junior Chamber of Commerce for its national project of 1952.

**To the Editor:**

Just finished reading "Pop Mech's" February issue with its "Special! Giant Auto Supplement." It's one of the best jobs I've ever seen.

Gene M. Brown,  
Herald Tribune,  
New York, N. Y.

**To the Editor:**

In the very interesting February issue of Popular Mechanics is an article "Antiques on Parade," a fascinating story of some of the old-timers.

On page 132 is a photo under a heading of a 1911 Cadillac which I identify as a Mercer.

I am somewhat of an old-timer myself, starting driving in 1908 and having escaped the hazards of the highways over a distance

(Continued to page 10)

# BOOST YOUR EARNING POWER DURING THE HOURS THAT COUNT



"Every hour I spent on my I. C. S. Course has been worth \$95.00 to me! My position, my \$7,000 a year income, my home, my family's happiness—I owe it to spare-time training with I. C. S."



EVERY MAIL brings letters like this from men and women who studied I. C. S. courses in their spare time.

What are you doing with the hours after supper? Can you afford to let them slip by unimproved when you can easily make them mean so much?

No matter where you live, I. C. S. will come to you. No matter what your handicaps or achievements, whether you make \$2,000 or \$20,000 a year, I. C. S. has a plan to fit your needs exactly. No matter how limited your previous education, the simply written, fully illustrated I. C. S. textbooks make it easy to learn. No matter what career you may choose, some one of the 391 I. C. S. courses can be your springboard to success.

An hour or two a day spent with I. C. S. will prepare you for the position you want in the work you like best. Doubt it? Then put it up to us to prove it! Mark and mail this coupon —now! We'll send you full information plus free book, "How to Succeed."

## INTERNATIONAL CORRESPONDENCE SCHOOLS



BOX 5575-L, SCRANTON 9, PENNA.

Without cost or obligation, send me "HOW to SUCCEED" and the booklet about the course BEFORE which I have marked X:

<b>ART</b>	<input type="checkbox"/> Heating	<b>CIVIL, STRUCTURAL ENGINEERING</b>	<input type="checkbox"/> College Preparatory	<input type="checkbox"/> Stationary Steam Engineering
<input type="checkbox"/> Commercial Art	<input type="checkbox"/> Steam Fitting	<input type="checkbox"/> Civil Engineering	<input type="checkbox"/> Mathematics	<input type="checkbox"/> Stationary Fireman
<input type="checkbox"/> Magazine and Book Illustrating	<input type="checkbox"/> Air Conditioning	<input type="checkbox"/> Structural Engineering	<input type="checkbox"/> Commercial	<b>RADIO, TELEVISION, COMMUNICATIONS</b>
<input type="checkbox"/> Cartooning	<input type="checkbox"/> Electrician	<input type="checkbox"/> Surveying and Mapping	<input type="checkbox"/> Good English	<input type="checkbox"/> General Radio
<input type="checkbox"/> Show Card and Sign Lettering	<input type="checkbox"/> BUSINESS	<input type="checkbox"/> Structural Drafting	<input type="checkbox"/> DRAFTING	<input type="checkbox"/> Radio Operation
<input type="checkbox"/> Fashion Illustrating	<input type="checkbox"/> Business Administration	<input type="checkbox"/> Highway Engineering	<input type="checkbox"/> Aircraft Drafting	<input type="checkbox"/> Radio Servicing—FM
<input type="checkbox"/> Auto-Elec. Technician	<input type="checkbox"/> Certified Public Accountant	<input type="checkbox"/> Reading Blueprints	<input type="checkbox"/> Architectural Drafting	<input type="checkbox"/> Television
<input type="checkbox"/> Auto Body Rebuilding and Refinishing	<input type="checkbox"/> Accounting	<input type="checkbox"/> Concrete Construction	<input type="checkbox"/> Electrical Drafting	<input type="checkbox"/> Electronics
<input type="checkbox"/> Diesel—Gas Engines	<input type="checkbox"/> Stenography and Typing	<input type="checkbox"/> Sanitary Engineering	<input type="checkbox"/> Mechanical Drafting	<input type="checkbox"/> Telephone Work
<b>AVIATION</b>	<input type="checkbox"/> Secretarial	<input type="checkbox"/> DRAFTING	<input type="checkbox"/> Machine Design-Drafting	<input type="checkbox"/> RAILROAD
<input type="checkbox"/> Aeronautical Engineering Jr.	<input type="checkbox"/> Federal Tax	<input type="checkbox"/> Aircraft Drafting	<input type="checkbox"/> Machine Shop Practice	<input type="checkbox"/> Locomotive Engineer
<input type="checkbox"/> Aircraft Engine Mechanic	<input type="checkbox"/> Business Correspondence	<input type="checkbox"/> Structural Drafting	<input type="checkbox"/> Tool Design	<input type="checkbox"/> Diesel Locomotive
<input type="checkbox"/> Airplane Drafting	<input type="checkbox"/> Personnel and Labor Relations	<input type="checkbox"/> Electrical Drafting	<input type="checkbox"/> Industrial Instrumentation	<input type="checkbox"/> Air Brakes
<b>BUILDING</b>	<input type="checkbox"/> Advertising	<input type="checkbox"/> Mechanical Drafting	<input type="checkbox"/> Machine Shop Inspection	<input type="checkbox"/> Car Inspector
<input type="checkbox"/> Architecture	<input type="checkbox"/> Retail Business Management	<input type="checkbox"/> Structural Drafting	<input type="checkbox"/> Reading Blueprints	<input type="checkbox"/> Railroad Administration
<input type="checkbox"/> Arch. Drafting	<input type="checkbox"/> Managing Small Business	<input type="checkbox"/> Sheet Metal Drafting	<input type="checkbox"/> Toolmaking	<b>TEXTILE</b>
<input type="checkbox"/> Building Contractor	<input type="checkbox"/> Sales Management	<input type="checkbox"/> Mine Surveying and Drafting	<input type="checkbox"/> Gas—Electric Welding	<input type="checkbox"/> Textile Engineering
<input type="checkbox"/> Estimating	<input type="checkbox"/> Salesmanship	<b>ELECTRICAL</b>	<input type="checkbox"/> Heat Treatment—Metallurgy	<input type="checkbox"/> Cotton Manufacture
<input type="checkbox"/> Carpenter and Mill Work	<input type="checkbox"/> Traffic Management	<input type="checkbox"/> Electrical Engineering	<input type="checkbox"/> Sheet Metal Work	<input type="checkbox"/> Rayon Manufacture
<input type="checkbox"/> Carpenter Foreman	<input type="checkbox"/> CHEMISTRY	<input type="checkbox"/> Electrician	<input type="checkbox"/> Refrigeration	<input type="checkbox"/> Woolen Manufacture
<input type="checkbox"/> Reading Blueprints	<input type="checkbox"/> Chemical Engineering	<input type="checkbox"/> Electrical Maintenance	<input type="checkbox"/> Electric Power and Light	<input type="checkbox"/> Loom Fixing
<input type="checkbox"/> House Planning	<input type="checkbox"/> Chemistry	<input type="checkbox"/> Electrical Drafting	<input type="checkbox"/> High School Subjects	<input type="checkbox"/> Finishing and Dyeing
<input type="checkbox"/> Plumbing	<input type="checkbox"/> Analytical Chemistry	<input type="checkbox"/> Electric Power and Light	<input type="checkbox"/> High School Subjects	<input type="checkbox"/> Textile Designing
	<input type="checkbox"/> Petroleum—Nat'l Gas	<input type="checkbox"/> Lineman		<b>HOME ARTS</b>
	<input type="checkbox"/> Pulp and Paper Making	<input type="checkbox"/> HIGH SCHOOL		<input type="checkbox"/> Combustion Engineering
	<input type="checkbox"/> Plastics	<input type="checkbox"/> High School Subjects		<input type="checkbox"/> Diesel—Electric
				<input type="checkbox"/> Electric Light and Power

Name \_\_\_\_\_ Age \_\_\_\_\_ Home Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Working Hours \_\_\_\_\_ A.M. to \_\_\_\_\_ P.M.

Occupation \_\_\_\_\_

Special tuition rates to members of the Armed Forces. Canadian residents send coupon to International Correspondence Schools Canadian, Ltd., Montreal, Canada

**NOW! HERE'S HOW TO**

# **Fix ANY Car**

**IN LESS TIME . . .**

**and do a better job too!**

DOGGONE! THIS JOB HAS ME LICKED! CAN'T FIGURE HOW TO FIX IT!

LET ME TAKE A CRACK AT IT!

10 MINUTES LATER—

LISTEN, PAL—ANY JOB IS TWICE AS EASY WITH ONE OF MOTOR'S REPAIR MANUALS!



**BIG NEW Edition of Famous MOTOR'S Manual Shows You How to Repair—Quickly and Easily—Any Car Built from 1935 THROUGH 1952!**

No job is too tough when you've got MOTOR'S brand-new AUTO REPAIR MANUAL. Shows how to save work on "ornery" jobs. Helps you make MORE MONEY by doing more jobs in less time! Now covers 1952 models; up-to-date information on all new automatic transmissions and carburetors.

**COMPILED FROM 170 OFFICIAL FACTORY SHOP MANUALS!**

This great book—over 780 BIG 8½" x 11" pages—brings you the complete "dope" from 170 Official Factory Shop Manuals, boiled down in simple easy-to-understand language. 2400 cut-away photos, diagrams, drawings show WHAT to do, HOW to do it. 225,000 service and repair facts! 851 car models! Now YOU can try it FREE—for 7 days.

## **SEND NO MONEY**

Mail coupon below — without money! When your book arrives—make it show you what it's got! Unless you agree it's the greatest time and work saver you've ever seen—return book in 7 days, pay nothing. Mail coupon NOW! MOTOR Book Department, Desk 14, 250 West 55th Street, New York 19, N. Y.

**Same FREE Offer On MOTOR'S Truck and Tractor Manual**

Latest Edition! Covers EVERY job on EVERY popular make gasoline truck, tractor, stock engine made from 1936 thru 1952, 928 big pages, 300,000 facts, 3267 pictures. Check proper box in coupon. FREE 7-Day Trial.



## **MAIL COUPON NOW FOR 7-DAY FREE TRIAL**

### **MOTOR BOOK DEPT.**

Desk 14, 250 W. 55th St., New York 19, N. Y.

Rush to me at once (check box opposite book you want):  **MOTOR'S New AUTO REPAIR MANUAL.** If O.K., I will remit \$1 in 7 days (plus 35¢ delivery charges), \$2 monthly for 2 months and a final payment of 95¢ one month after that. Otherwise I will return the book postpaid in 7 days. (Foreign price, remit \$8 cash with order.)

**MOTOR'S New TRUCK & TRACTOR REPAIR MANUAL.** If O.K., I will remit \$2 in 7 days, and \$2 monthly for 3 months, plus 35¢ delivery charges with final payment. Otherwise I will return book postpaid in 7 days. (Foreign price, remit \$10 cash with order.)

Print Name \_\_\_\_\_ Age \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_  
 Check box and save 35¢ delivery charge by enclosing WITH coupon entire payment of \$5.95 for Auto Repair Manual (or \$8 for Truck and Tractor Repair Manual.) Same 7-day return-refund privilege applies.

(Continued from page 8)

of 1,500,000 miles. I have owned since 1918 a Knox Model R raceabout which (far as I have been able to determine) is the only one left if not the sole one built.

As automotive instructor, I regularly turn to many of the instructive and educational features of your most excellent publication.

David N. Singer,  
Lexington, Ky.

### **To the Editor:**

Being a motorcycle enthusiast, I especially enjoyed your February issue. It was very interesting and I couldn't help but note your mention of the Puch machines



as I am an owner of a Puch 125-cubic-centimeter motorcycle . . . [Herewith is] a photo of the new Puch RL 125 Motor which may be of interest. To my knowledge, this scooter is not available in this country as yet.

Am also enclosing a snapshot of yours truly and two daughters who "like to ride," too.

Philip Mulkey,  
Fairbury, Neb.

(Continued to page 238)

# AUDELS TV-RADIO SERVICE LIBRARY

**2 VOL. \$6** COMPLETE \$1 A PAY ONLY 1 MO.

HERE IS LATE INFORMATION IN A HANDY FORM FOR RADIO & TELEVISION REPAIRMEN, SERVICEMEN AND STUDENTS

**IT PAYS TO KNOW!**

AUDELS T.V.-RADIO SERVICE LIBRARY presents the important subjects of Modern Radio, Television, Industrial Electronics, F.M. Public Address Systems, Auto, Marine & Aircraft Radio, Phonograph Pick-Ups, etc. Covers Basic Principles—Construction—Installation—Operation—Repairs—Trouble Shooting. Shows How to get Sharp, Clear T.V. Pictures, Install Aerials—How to Test. Explains Color Systems & Methods of Conversion. 1001 Facts—Over 1260 Pages—625 Illustrations of Parts & Diagrams—Valuable for Quick Ready Reference & Home Study. Tells How to Solve T.V. & Radio Troubles—Answers T.V. & Radio Questions.

**Get this information for Yourself,  
7 DAY TEST—ASK TO SEE IT!**

**MAIL ORDER**

AUDEL, Publishers, 49 W. 23rd St., New York 10, N.Y.

Mail AUDEL'S T.V. RADIO SERVICE LIBRARY 2 Vols. \$6 on 7 days free trial. If O.K. I will remit \$1 in 7 days and \$1 monthly until \$6 is paid. Otherwise I will return them.

Name \_\_\_\_\_

Address \_\_\_\_\_

Occupation \_\_\_\_\_

Employed by \_\_\_\_\_ P-4

# AUDELS Carpenters and Builders Guides 4 vols. \$6



Inside Trade Information for Carpenters, Builders, Joiners, Building Mechanics and all Woodworkers. These Guides give you the short-cut instructions that you want—including new methods, ideas, solutions, plans, systems and money saving suggestions. An easy progressive course for the apprentice and student. A practical daily helper and Quick Reference for the master worker. Carpenters everywhere are using these Guides as a Helping Hand to Easier Work, Better Work and Better Pay. To get this assistance for yourself, simply fill in and mail FREE COUPON below.

## Inside Trade Information On:

How to use the steel square—How to file and set saws—How to build furniture—How to use a mitre box—How to use the chalk line—How to use rules and scales—How to make joints—Carpenters arithmetic—Solving measurement problems—Estimating strength of timbers—How to set girders and sills—How to frame houses and roofs—How to estimate costs—How to build houses, barns, garages, bungalows, etc.—How to read and draw plans—Drawing up specifications—How to excavate—How to use settings 12, 13 and 17 on the steel square—How to build hoists and scaffolds—skylights—How to build stairs—How to put on interior trim—How to hang doors—How to lath—lay floors—How to paint.

AUDEL, Publishers, 49 W. 23rd St., New York 10, N.Y. Mail Audef's Carpenters and Builders Guides, 4 vols., on 7 days' free trial. If OK I will remit \$1 in 7 days and \$1 monthly until \$6 is paid. Otherwise I will return them. No obligation unless I am satisfied.

Name \_\_\_\_\_

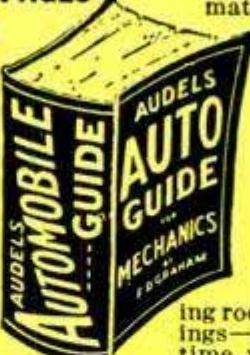
Address \_\_\_\_\_

Occupation \_\_\_\_\_

Employed by \_\_\_\_\_ P-4

# WHAT ALL AUTO MECHANICS WANT TO KNOW

1800 PAGES



This Big Practical Book gives full information with working diagrams covering the principles, construction, ignition, service and repair of modern cars, trucks and buses.

**Diesel Engines, Hydramatic & Fluid Drives Fully Explained.**

A complete Guide of 1800 pages, with over 1500 illustrations showing inside views of working parts, with instructions for service jobs.

**IT PAYS TO KNOW**

How to fit pistons—How to locate engine knocks. How to fit connecting rod bearings—How to service main bearings—How to recondition valves—How to time valves—How to adjust fan belts—How to adjust carburetors and chokes. How to rebuild a clutch—How to service automatic transmissions—How to service brakes—How to adjust steering gear—How to cope with ignition troubles—How to service distributors—How to time ignition—How to "tune up" an engine.



**\$4 COMPLETE • PAY \$1 A MO.**  
**TO GET THIS ASSISTANCE FOR YOURSELF SIMPLY FILL IN AND MAIL COUPON TODAY.**

Step up your own skill with the facts and figures of your trade. Audels Mechanics Guides contain Practical Inside Trade Information in a Handy Form. Fully illustrated and Easy to Understand. Highly Endorsed. Check the book you want for 7 DAYS FREE EXAMINATION. Send No Money. Nothing to pay postman.

# MAIL ORDER

AUDEL, Publishers, 49 W. 23 St., 10, N.Y. NEW YORK  
Please send me postpaid for FREE EXAMINATION books marked  below. If I decide to keep them I agree to mail \$1 in 7 Days on each book or set ordered and further mail \$1 monthly on each book or set until I have paid price, otherwise I will return them.

- AUTOMOBILE MECHANICS GUIDE, 1800 Pages \$4
- TRUCK & TRACTOR GUIDE, 1299 Pages . . . . . 4
- DIESEL ENGINE MANUAL, 575 Pages . . . . . 2
- MACHINISTS HANDY BOOK, 1650 Pages . . . . . 4
- WELDERS GUIDE, 400 Pages . . . . . 1
- BLUE PRINT READING, 416 Pages . . . . . 2
- MATHEMATICS & CALCULATIONS, 700 Pages . . . . . 2
- SHEET METAL PATTERN LAYOUTS, 1100 Pages . . . . . 4
- SHEET METAL WORKERS HANDY BOOK, 388 Pgs. . . . . 1
- MECHANICAL DRAWING GUIDE, 160 Pages . . . . . 1
- MECHANICAL DRAWING & DESIGN, 480 Pages . . . . . 2
- AIRCRAFT WORKER, 240 Pages . . . . . 1
- TELEVISION SERVICE MANUAL, 384 Pages . . . . . 2
- RADIOMAN'S GUIDE, 914 Pages . . . . . 4
- ELECTRONIC DEVICES, 216 Pages . . . . . 2
- ELECTRIC MOTOR GUIDE, 1000 Pages . . . . . 4
- ELECTRIC WIRING DIAGRAMS, 272 Pages . . . . . 1
- ELECTRICIANS EXAMINATIONS, 250 Pages . . . . . 1
- ELECTRIC POWER CALCULATIONS, 425 Pages . . . . . 2
- HANDY BOOK OF ELECTRICITY, 1440 Pages . . . . . 4
- ELECTRIC DICTIONARY, 9000 Terms . . . . . 2
- ELECTRIC LIBRARY, 7000 Pages (12 Book Set) . . . . . 18
- MARINE ENGINEERS HANDY BOOK, 1258 Pgs. . . . . 4
- SHIPFITTERS HANDY BOOK, 250 Pages . . . . . 1
- REFRIGERATION & Air Conditioning, 1280 Pgs. . . . . 4
- MILLWRIGHTS & MECHANICS GUIDE, 1200 Pgs. . . . . 4
- POWER PLANT ENGINEERS GUIDE, 1500 Pages . . . . . 4
- ENGINEERS & FIREMANS EXAMS, 525 Pages . . . . . 1
- PUMPS, Hydraulics & Air Compressors, 1658 Pgs. . . . . 4
- ENGINEERS LIBRARY (3 Book Set) . . . . . 9
- MECHANICAL DICTIONARY, 950 Pages . . . . . 4
- GARDENERS & GROWERS GUIDES (4 Book Set) . . . . . 6
- CARPENTERS & BUILDERS GUIDES (4 Book Set) . . . . . 6
- PLUMBERS & Steamfitters Guides (4 Book Set) . . . . . 6
- MASONS AND BUILDERS GUIDES (4 Book Set) . . . . . 6
- PAINTERS & DECORATORS MANUAL, 450 Pgs. . . . . 2
- HOUSE HEATING GUIDE, 1000 Pages . . . . . 4
- OIL BURNER GUIDE, 384 Pages . . . . . 1

**MAIL THIS TODAY**



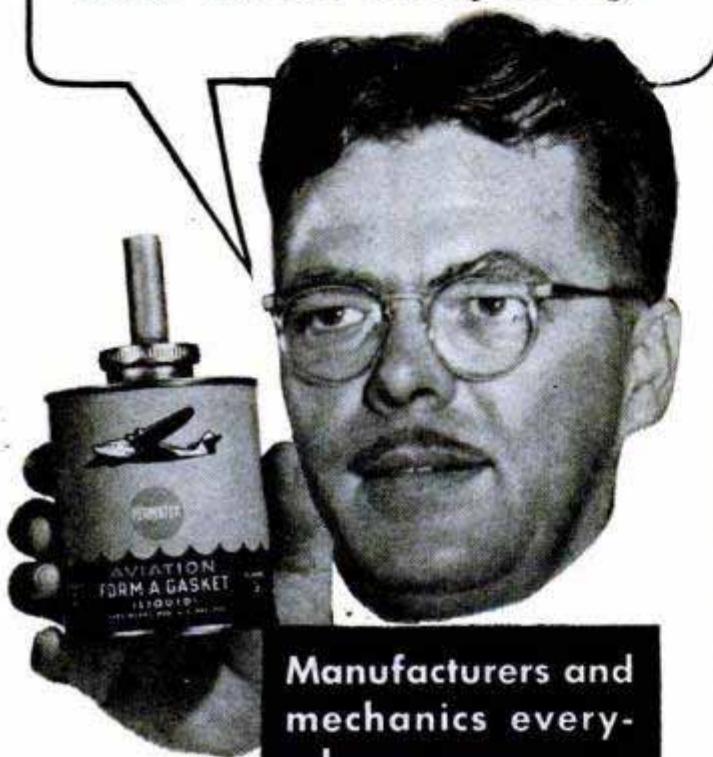
Name \_\_\_\_\_

Address \_\_\_\_\_

Occupation \_\_\_\_\_

Employed by \_\_\_\_\_ P-4

# PERMATEX FORM-A-GASKET® "Seals Cylinder Head Gaskets...so it will seal about everything"



Manufacturers and  
mechanics every-  
where use—  
**FORM-A-GASKET**

A foreman of a big engine rebuilding shop says, "We coat both sides of all cylinder head gaskets with Form-A-Gasket and brush it into the stud and cap screw threads. It is a positive seal without cementing."

Keep Form-A-Gasket handy in your workshop as an all-purpose gasket and pipe fitting compound.

## 3 TYPES for your convenience



No. 1 sets quickly, dries hard. No. 2 sets slowly, is non-hardening. Aviation No. 3 is a brushable liquid that sets to a paste. All three make leakproof, pressure-tight seals in threaded, hose and flange connections.

*Send for free illustrated catalog*

**PERMATEX COMPANY, INC.**  
Brooklyn 35, New York

## WHERE-TO-BUY-IT INDEX

Source of supply appears after items commercially available

### AUTOMOTIVE

Traffic "diary" for automobiles.....	92
Lightweight trailer collapses for travel.....	96
10,000 miles nonstop at 36 miles per gallon.....	113
Hy-Drive transmission for Plymouth reduces shifting of gears.....	121
Three new Rambler.....	122
Detroit Listening Post.....	129
Permanent front-wheel packing (Douglass Products Co., 2410 Auburn Blvd., Sacramento 21, Calif.).....	145
Perforated sport-car chassis.....	151

### AUTOMOTIVE ACCESSORIES

Easily installed accessory makes standard transmission automatic (Benmatt Organization, 1550 Milwaukee Ave., Chicago 22).....	130
Automobile tent mounts on car (Kar-Tent Co., Dept. 71, Box 1107, Santa Monica, Calif.).....	143
Stainless-steel hub caps simulate wire wheels (Calnevar Co., Wire Wheel Div., Los Angeles, Calif.).....	145
Water tank atop truck engine supplies cab with hot water.....	151
Dial shows battery condition (Imperial Motor Products, Ltd., 570 5th Ave., New York City 36).....	250

### BICYCLES, SCOOTERS AND TRICYCLES

Motor-assisted bicycle mounts engine over front wheel (Holiday Products, 2800 Warwick Blvd., Kansas City 8, Mo.).....	92
Two-wheel bicycle trailer transports heavy loads (Kron Wheel Goods, Box 101, Fertile, Minn.).....	145

### BUILDING AND CONSTRUCTION

Earth compactor permits construction on sand.....	91
Modern cabin uses short lengths of logs mortared like stone.....	143
Conveyor chain easily connected (Jervis B. Webb Co., 8951 Alpine Ave., Detroit 4, Mich.).....	145
Concrete slabs bend like steel when reinforced with steel wire (Porete Mfg. Co., Porete Ave., North Arlington, N. J.).....	157
Wheelbarrow elevator aids construction.....	165
Low-cost home on the range.....	166
"Convertible" living room features slide-away roof.....	168

### FARMING

Beef on the wing.....	94
Thermostat regulates temperature in plant incubator (Old Copper Mine Farms, Inc., Rd. 2, Box 198, Plainfield, N. J.).....	137
Power sod cutter "walks" along ground (Phillips Power Sod Cutter, 619 S. 15th St., Lafayette, Ind.).....	144
Harvester hugs ground to pick up walnuts (Food Machinery & Chemical Corp., John Bean Div., San Jose 1, Calif.).....	150

### HOUSE AND HOME

Telescoping food dispenser easily installed in most sinks (In-Sink-Erator Mfg. Co., Racine, Wis.).....	87
Baby harness prevents falls (Duke Koehler Co., 1741 N. Santa Fe St., Compton, Calif.).....	87
Circuit breakers replace fuses in standard fuse boxes (E. C. Watkins & Co., 685 Pallister Ave., Detroit 2, Mich.).....	128
Thin-wall refrigerator of the future saves kitchen space.....	137
Featherweight bathtub made of glass fiber resists damage (Strand-Plax Building Products Co., Birmingham, Mich.).....	144
"Flowerpot" trap lures insects and humidifies air (Benton's Sales, 1308 S. Buchanan, Amarillo, Tex.).....	156
Changeable chair (M.B.P. Corp., 976 Sacket Ave., New York City 61).....	158
Hanger for cords (Mary L. McKinney, Box 1282, M.P., Los Angeles, Calif.).....	158
All-purpose knife (United States Cutlery Mfg. Co., 1236 48th St., Brooklyn 19, N. Y.).....	158
Homeowners' record book (Jackson Publications, Inc., 305 E. 46th St., New York City 17).....	158
Baby bottle.....	159
Small sink (American Radiator & Standard Sanitary Corp., Pittsburgh 30, Pa.).....	159
Safety knob for ranges (Patent Button Co., Knoxville, Tenn.).....	159
Cherry and olive pitter (R. Krasberg & Sons Mfg. Co., 2501 Homer St., Chicago 47).....	159
Flexible sprinkler (Andrews Sprinklers, Dept. PM, 6612 Sunset Blvd., Hollywood 28, Calif.).....	159

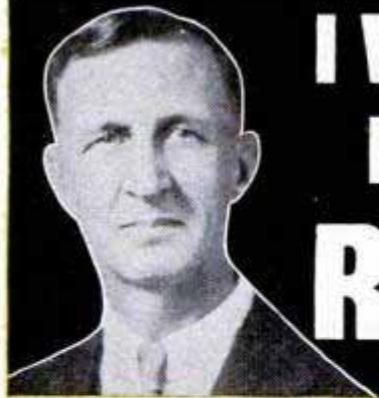
### INDUSTRY

Midget X-ray unit for industrial applications weighs 150 pounds (General Electric Co., 4855 Electric Ave., Milwaukee 14, Wis.).....	91
Paper mill—sample size.....	111
Flash freezer supplies milk shake in eight seconds (Insta Company, 506½ S. Broadway, Los Angeles 13, Calif.).....	112
Single control panel operates oil refinery.....	119
Ground walnut shells used to clean aluminum tire molds.....	120
Merry-go-round washing machine for commercial laundries (Kurt Oban Co., Inc., 205 E. 42nd St., New York City 17).....	131
Automatic dry cleaner (Jet-O-Mat Systems, 3015 McCullough, San Antonio, Tex.).....	136
Massive diesel engine generates electricity.....	155
Television goes to work for sugar plantations.....	165
Sub-zero commercial refrigerator (Mede, Inc., Skokie Highway and Clavey Rd., Highland Park, Ill.).....	272

(Continued to page 14)

# I WILL TRAIN YOU AT HOME FOR GOOD PAY JOBS IN RADIO-TELEVISION

J. E. SMITH has trained more men for Radio-Television than any other man.



**America's Fast Growing Industry Offers You**

## I TRAINED THESE MEN



**LOST JOB, NOW HAS OWN SHOP**  
"Got laid off my machine shop job which I believe was best thing ever happened as I opened a full time Radio Shop. Business is picking up every week." —E. T. Slate, Corsicana, Texas.

**GOOD JOB WITH STATION**  
"I am Broadcast Engineer at WLPM. Another technician and I have opened a Radio-TV service shop in our spare time. Big TV sales here . . . more work than we can handle." —J. H. Bangley, Suffolk, Va.



**\$10 TO \$15 WEEK SPARE TIME**  
"Four months after enrolling for NRI course, was able to service Radios . . . averaged \$10 to \$15 a week spare time. Now have full time Radio and Television business." —William Wayde, Brooklyn, New York.

**SWITCHED TO TV SERVICING**  
"I recently switched over from studio work and am now holding a position as service technician. I am still with RCA, enjoying my work more and more every day." —N. Ward, Ridgefield, N. J.



## WANT YOUR OWN BUSINESS?

Let me show you how you can be your own boss. Many NRI trained men start their own business with capital earned in spare time. Robert Dohmen, New Prague, Minn., whose store is shown at left, says, "Am now tied in with two Television outfits and do warranty work for dealers. Often fall back to NRI textbooks for information."



## 1. EXTRA MONEY IN SPARE TIME →

Many students make \$5, \$10 a week and more EXTRA fixing neighbors' Radios in spare time while learning. The day you enroll I start sending you SPECIAL BOOKLETS that show you how. Tester you build with kits I send helps you make extra money servicing sets, gives practical experience on circuits common to Radio and Television. All equipment is yours to keep.

2 FREE BOOKS  
SHOW HOW  
MAIL COUPON



## 2. GOOD PAY JOB →

NRI Courses lead to these and many other jobs: Radio and TV service, P.A., Auto Radio, Lab, Factory, and Electronic Controls Technicians, Radio and TV Broadcasting, Police, Ship and Airways Operators and Technicians. Opportunities are increasing. The United States has over 105 million Radios—over 2,900 Broadcasting Stations—more expansion is on the way.



## 3. BRIGHT FUTURE →

Think of the opportunities in Television. Over 15,000,000 TV sets are now in use; 108 TV stations are operating and 1800 new TV stations have been authorized . . . many of them expected to be in operation in 1953. This means more jobs—good pay jobs with bright futures. More operators, installation service technicians will be needed. Now is the time to get ready for a successful future in TV! Find out what Radio and TV offer you.



## You Learn Servicing or Communications by Practicing With Kits I Send

Keep your job while training at home. Hundreds I've trained are successful RADIO-TELEVISION Technicians. Most had no previous experience; many no more than grammar school education. Learn Radio-Television principles from illustrated lessons. You also get PRACTICAL EXPERIENCE. Pictured at left are just a few of the pieces of equipment you build with kits of parts I send. You experiment with, learn circuits common to Radio and Television.

**Mall Coupon—find out what RADIO-TELEVISION Can Do for You**  
**Act Now!** Send for my FREE DOUBLE OFFER. Coupon entitles you to actual Servicing Lesson; shows how you learn at home. You'll also receive my 64-page book, "How to Be a Success in Radio-Television." Send coupon in envelope or paste on postal. J. E. SMITH,  
Pres., Dept. 3DA,  
National Radio Institute,  
Washington 9, D. C.  
Our 39th Year.

The ABC's of SERVICING

## Good for Both—FREE

Mr. J. E. Smith, President, Dept. 3DA,  
National Radio Institute, Washington 9, D. C.  
Mail me Sample Lesson and 64-page Book, "How to  
Be a Success in Radio-Television." Both FREE. (No  
salesman will call. Please write plainly.)

Name \_\_\_\_\_ Age \_\_\_\_\_

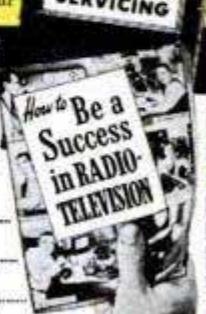
Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Approved under G.I. Bill

## Television Is Today's Good Job Maker

TV now reaches from coast-to-coast. Qualify for a good job as a service technician or operator. My course includes many lessons on TV. You get practical experience . . . work on circuits common to both Radio and Television with my kits. Now is the time to get ready for success in Television!





Exotic Natives — at work and play in far away and mysterious lands.

Fierce Jungle Beasts — against a background of steamy tropic forests.

Thrilling Foreign Scenes — beautiful and unusual sights from every corner of the globe.

# Free THIS PRIZED AND VALUABLE SET OF 50 FRENCH COLONIAL STAMPS

**Now Sent FREE to Secure Names for Our Mailing List**

WHAT a GIFT! FIFTY colorful stamps from every corner of the far-flung French Empire — darkest Africa to the headline hot-spot — Indo-China! Every continent represented. Each stamp is different. Each stamp worth REAL MONEY! Total price — in Standard Catalog — guaranteed to be at least \$1.00, yet ALL ARE YOURS FREE! But you must act at once. The demand is great, our supply limited. We'll also include other interesting offers for your inspection — PLUS a FREE copy of our helpful book, "How to Collect Stamps." This offer may have to be withdrawn soon — so rush coupon with 10c to help cover postage and handling to:

**Littleton Stamp Co., Dept. 4-PM, Littleton, N. H.**

## Also FREE —

Helpful illustrated book, "How to Collect Postage Stamps." Packed with expert advice on how to get started; where and how to find rare stamps; how to mount them, trade them, etc.



**LITTLETON STAMP CO., Dept. 4-PM, Littleton, N. H.**

Send—FREE—set of 50 French Colonial Stamps and informative booklet, "How to Collect Stamps." I enclose 10c to help cover actual postage and handling costs.

Name.....

Address.....

City..... State.....

(Continued from page 12)

### OFFICE, SHOP AND STORE

Silicon-carbide tool grinder (Behr-Manning Corp., Troy, N.Y.)	87
Mechanic's tool tray hooks onto radiator for convenience (MecTray, 6009 W. Pico Blvd., Los Angeles 35, Calif.)	155
Portable tape dispenser facilitates sealing of shipping cartons (Mid-States Gummed Paper Co., 2515 S. Damen Ave., Chicago 8)	156
"Wrist watch" sponge moistens fingertips (Vegas Mfg. Co., Box 1174-P, Salt Lake City 10, Utah)	256

### SCIENCE AND MEDICINE

Hand-grenade fuses inspected automatically by X-ray machine	92
Scientists snag smog with "spiderweb" filters	93
Plastic strengthens plaster casts	130
Study Douglas-fir beetles to prevent future tree damage	137
Ultrarapid freezing keeps cells alive	144
Radioactive magnesium aids chlorophyll study	260
Nylon knee-cap liners help arthritics	282

### SPORTS AND RECREATION

Midsummer ski meet	86
Floor tennis combines elements of two games	121
Giant model plane flies 70 miles per hour	130
Global air-race game teaches players geography with recreation (Replogle Globes, Inc., 315 N. Hoyne Ave., Chicago 12)	150
Offset gun sight (Leed Sight Co., Navarre, Minn.)	157
Twin outboard motors power "poor man's" yacht	160
Featured at the '53 boat show (1) Topper Boat Co., 536 N. Patterson Park Ave., Baltimore 5, Md. (2) U-Mak-It Products, 701 Whittier St., Bronx 59, N. Y. (3) Scottie-Craft, 471 N.E. 79th St., Miami, Fla. (4) Aluma Craft Boat Co., 2633 27th Ave., Minneapolis, Minn.	161

### MISCELLANEOUS

Armor plate protects rail crews from rebel attacks	105
Pipe with two bowls filters and cools smoke (Sepra-Bol Pipe Co., Box 1130, Houston, Tex.)	105
Curved-wing appearance of plane surprises photographers	105
Ironworker's suit wards off heat	112
Lightweight ocean-crossing cable is insulated with plastic	119
"Four-year" ship model driven by steam engine	120
Sunglasses have small mirrors to provide backward view	121
Water jet propels boat	123
Pipa picker's climbing aid affords record harvest	128
Electronic interpreters may translate foreign-language documents	131
"Poor man's corn" proves excellent value in vegetable diets	143
Giant bridge to dip under island	152
Panama Canal has big year	155
Submersible sump pump has no floats above floor level	156
Cockpit capsule allows pilot to escape high-speed plane	157
Remote-control automatic camera inspects German sewers	165
Hydraulic tire breaker made from aircraft parts	246

### Craftsman and Shop Notes Index

#### AUTOMOTIVE

Colored cardboard tab on lever warns of set emergency brake	171
Funnel from whipped-cream can used to fill brake cylinder	186
Auto-seat pocket holds catalogues	226

#### CONSTRUCTION

Concrete floor made watertight by layer of tar paper	186
Laminating arched rafters	194
Coalbin outside foundation saves basement space	202

#### FARM AND GARDEN

Guide for spacing seedlings speeds transplanting	183
Hedge shear with notched blade cuts slippery branches	186
Wire loops on field gatepost provide easily fastened latch	211
Boiler on wheels carries water to turkey flock in field	217
Oil drum used as stump burner	226

#### FISHING TIPS

Wooden block provides means of storing fishing leaders	178
Fishhook has sliding wire guard to prevent snagging on weeds	193
Specially rigged line fools carp with sliding sinker arrangement	198

#### HOUSE AND HOME

Unusual stand for television set formed with loose bricks	171
Cleaning clogged downspouts	175
Solving home problems	176
Heavy cloth mended with needle made from can-opening key	178
Signs suspended in rustic frames held by tire-chain links	178
Inventory list taped to freezer	183
Pins on paper easy to locate if taped around bottle	194
Rope rail adds nautical touch to beach-cottage steps	198
Retacking frayed screen wire	206

#### JIGS AND FIXTURES

Wooden drawer pull protects hand used to strike center punch	170
Improvised thumbscrew "wrench"	171
Fastener used as clamp	175
Drill stand from tape spool	183
Jig for painting Venetian blinds	184
Nail locks window-screen hook	184
Rests protect outboard housing	186
Ceiling rack stores dowels	186
Gasoline can has attached funnel	186
Round file used as reamer	196
Bar magnet on screwdriver blade permits driving with one hand	196
Convenient holder for power tool provided by coffeemaker handle	198

(Continued to page 16)

# INVENTORS

Learn how to protect your invention. The U. S. Patent Laws provide that any new and useful art, machine, article of manufacture, or composition of matter, or any new and useful improvement thereof, may be patented if the act of invention is involved. Therefore, every inventor with a valuable invention should take advantage of the Patent Laws and proceed for patent protection in order to safeguard his rights.

A patent gives the inventor the exclusive right to prevent others from making, using, or selling the invention claimed in the patent for a period of seventeen years.

The Patent Laws were enacted for the benefit of the inventor to give him protection for the features of his invention which are patentable. These features must be properly and concisely set forth and claimed in a formal application for patent, in order to comply with the requirements of the Patent Laws. For that reason, unless the inventor is familiar with patent matters, he should engage a competent registered patent attorney or agent to represent him. We are registered to practice before the U. S. Patent Office and are prepared to serve you in the handling of your patent matters.

A specially prepared booklet entitled "Patent Guide for the Inventor", containing detailed information with respect to patent protection and procedure, together with a "Record of Invention" form will be promptly forwarded to you without obligation upon request.

**CLARENCE A. O'BRIEN & HARVEY JACOBSON**

*Registered Patent Attorneys*

**31-D DISTRICT NATIONAL BUILDING**

**WASHINGTON 5, D. C.**

# NEWS from SCIENCE ABOUT YOUR HAIR

## Laboratory discovery outdates messy hair oils!



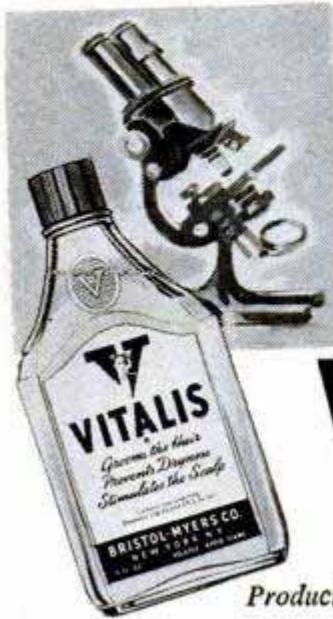
"V-7," completely new greaseless grooming agent, now in Vitalis Hair Tonic. It's *not* an animal, vegetable or mineral oil!

### Hair stays neat all day

No gummy film, no oily or matted-down look with new Vitalis!



### Kills dandruff germs, too!



New Vitalis kills *on contact* germs many doctors associate with infectious dandruff. Feels "tingling good" on scalp!

### NEW FINER **VITALIS®** HAIR TONIC

WITH "V-7"

Product of Bristol-Myers

(Continued from page 14)

Jig to straighten kinked wire.....	206
Washer soldered to oil-can spout holds open spring-capped oiler.....	211
Windproof flame for blowtorch pan.....	211
Vise holds thin stock for drilling.....	217
Depth gauge on posthole digger.....	226

#### OFFICE, SHOP AND STORE

Handle for yardstick.....	170
Inexpensive pencil sharpener mounted on small jar.....	175
Step-ladder step-savers.....	197
Pencil-type eraser drilled in end holds pencil stubs for writing.....	202
Waste space in deep drawer accommodates sliding tray.....	206
Funnel in top step of ladder holds electric bulbs.....	211
Book ends replace easel backs of merchandise-display cards.....	226

#### PAINTBRUSH CARE

Wire rest holds brush over pall.....	178
Correct use of paint roller gives smoother finish.....	183
Paintbrush gives longer service when properly broken in.....	194

#### PHOTOGRAPHY

Plug-in foot control switch.....	207
Darkroom apron folded to catch drippings.....	208
Preventing loss of adapter screw.....	208
Simple lens-shade cover .....	208

#### TOOLS

Portable vapor-type degreaser (J. D. Wallace Co., 134 S. California Ave., Chicago 12).....	224
Knife rack (Maryland Mail Order, Box 605, West Hyattsville, Md.).....	224
Doweling Jig (William S. Helm, Bartley Lane, Fulton, Mo.).....	225
Heavy-duty ignition coil (Crumbliss Mfg. Co., 3011 N. Cicero Ave., Chicago 41).....	225
Sink-boring tool (General Electric Co., Appliance Div., Louisville, Ky.).....	225
Homeowner's tool kit (E. Miltenberg, Inc., 43 Great Jones St., New York City 12).....	225
Aligning scope (Joel Fox Co., Inc., 1110 N. Seward St., Los Angeles 38, Calif.).....	225
Check protector (Skolsky's, Inc., 8 N. Division St., Peekskill, N. Y.).....	225
Lathe attachment (National Threading Machine Co., 126 Market St., Paterson, N. J.).....	225
Thin cutoff tool for metal lathe.....	226

#### WORKSHOP HINTS

Adapter sleeves increase size of undersized bit shanks.....	170
Nailing boards at right angles.....	171
Nonslip back for sandpaper.....	178
When bending sheet plastic use asbestos mat over heat.....	184
Machine screws shortened easily when held in block for cutting.....	186
Tapping or reaming of thin work started easily in drill press.....	196
Hanger for storing handsaws.....	196
Beeswax for lubricating screws carried in altered fuses.....	198
Pipe cap directs gasoline into blowtorch pan.....	202
Matches used to boost heat of electric soldering iron.....	202
Connector fitting for tubing enlarged by turns of wire.....	206
Improvised lathe-dog driver.....	211
Chisel used to chip high spots when truing grindstone.....	226

#### MISCELLANEOUS

Rubber patch cemented to heels prevents wear along edges.....	171
Drive belt for toy motor formed with friction tape.....	175
Perch made from baby stroller provides child view of parade.....	175
Plan of the month—knockdown barbecue table.....	184
Belt coiled inside itself for storing or packing.....	194
Rubber strip provides handle on camper's blanket roll.....	202
Making antproof dog-food dish.....	206

### Radio-Television, Electronics

TV recording systems.....	227
Six-in-one radio lab. project for beginners.....	228
Tools for radio students and experimenters.....	231
(1) Bench-type drill press (Atlas Press Co., 2073 N. Pitcher St., Kalamazoo, Mich.)	
(2) Chassis punches (Greenlee Tool Co., 1706 Columbia Ave., Rockford, Ill.)	
(3) Electric soldering guns (Drake Electric Works, 3654 Lincoln Ave., Chicago 13)	
(4) Screw-holding screwdrivers (Vaco Products Co., 317 E. Ontario St., Chicago 11)	
Television Today.....	232
(1) Filter network for UHF and VHF reception (JFD Mfg. Co., Inc., 6101 16th Ave., Brooklyn 4, N. Y.)	
(2) Ten-element antenna for fringe areas (Technical Appliance Corp., Sherburne, N. Y.)	
(3) TV antenna in the form of model boat (Earl A. Craft Co., Dept. 150, 619 Round Oak Rd., Baltimore 4, Md.)	
(4) Automatic TV impedance matching unit (Electronics Mfg. Co., 9820 Irwin Ave., Inglewood, Calif.)	
(5) New coaxial cable system (Bell Telephone Laboratories, 463 West Street, New York City 14)	

**IMPORTANT NOTICE**—It is the intention of this magazine to provide its readers with information regarding the latest developments in the mechanical arts. We take no responsibility as to whether the disclosures contained in our articles are covered by patents and advise readers to investigate this subject before making, using, or selling any of the products, machines, or processes described in order to avoid possible liability for patent infringements.

# INVENTORS

If you believe that you have an invention, you should find out how to protect it. The first step is to have a search made of the prior pertinent U. S. patents. If a report on this search indicates that the invention appears patentable you can apply for a patent, and the specifications and claims should be prepared.

The firm of McMorrow, Berman & Davidson, with offices in Washington, D. C., is qualified to take the necessary steps for you. We can make a preliminary search on your invention, advise you whether we think it can be patented, and prepare your application for

patent.

Unless you are fully familiar with the U. S. Patent Laws, we recommend that you engage the services of a Registered Patent Attorney to protect your interests. The patent laws are *your* laws. A patent gives you the right to prevent others from making, using or selling the invention claimed in your patent for a period of 17 years.

Use these patent laws for your protection. Investigate whether your invention can be patented. If you have what you believe to be an invention, we suggest that you have this firm make a search for you.

*Send for a copy of our Patent Booklet entitled "How To Protect Your Invention," containing information about patent protection and patent procedure. Along with this we will also send you an "Invention Record" form, for your use in writing down and sketching details of your invention. We will mail them promptly. No obligation. They are yours for the asking.*

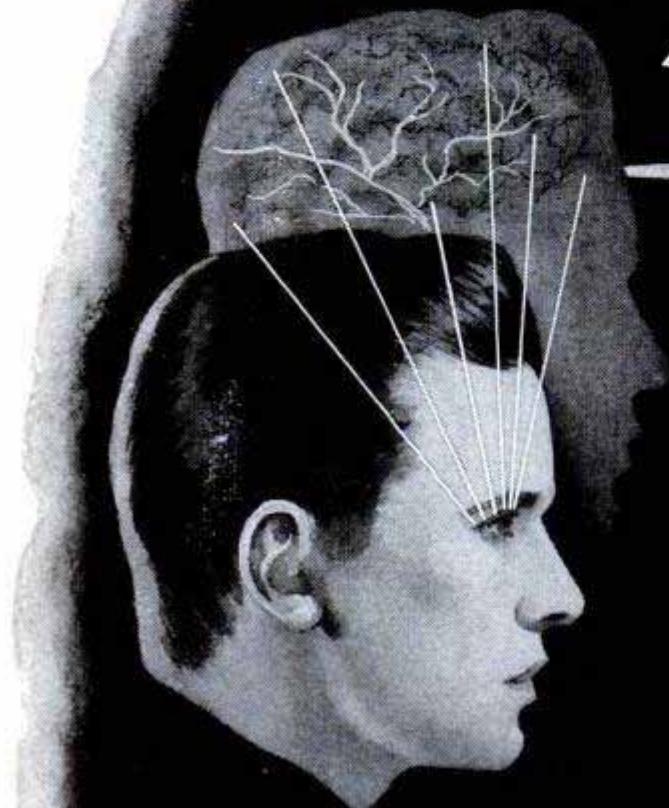
## McMORROW, BERMAN & DAVIDSON

Registered Patent Attorneys

PATENTS • COPYRIGHTS • PATENTS

135-K VICTOR BUILDING, WASHINGTON 1, D. C.

# In Your Mind's Eye



## The Secret of MENTAL CREATING

IF you just like to dream, read no further. There comes a time when your fancies *must* be brought into light—and stand the test of every-day, hard realities. Are you one of the thousands—perhaps millions—whose thoughts never get beyond the stage of *wistful wishing*? Do you often come from a daydream with the sigh, "If only I could bring it about—*make it real*?"

All things begin with thought—it is what follows that may take your life out of the class of those who hope and dream. Thought energy, like anything else, can be dissipated—or it can be made to produce actual effects. *If you know how to place your thoughts* you can stimulate the creative processes within your mind—through them you can assemble things and conditions of your world into a happy life of accomplishment. *Mental creating* does not depend upon a magical process. It consists of *knowing how* to marshal your thoughts into a power that draws, compels and organizes your experiences into a worth-while design of living.

### ACCEPT THIS *Free* BOOK

Let the Rosicrucians tell you how you may accomplish these things. The Rosicrucians (not a religious organization), a world-wide philosophical fraternity, have preserved for centuries the ancients' masterful knowledge of the functioning of the inner mind of man. They have taught men and women how to use this knowledge to *recreate their lives*. They offer you a free copy of the fascinating book, "The Mastery of Life." It tells how you may receive this information for study and use. Use coupon opposite.

### The ROSICRUCIANS (AMORC)

SAN JOSE

CALIFORNIA

SCRIBE: P.V.J.  
The Rosicrucians (AMORC),  
San Jose, California.

Please send free copy of "The Mastery of Life,"  
and I shall read it as directed.

Name.....

Address.....

City.....

# How to pass a genius



All of us can't be geniuses. But any ordinarily talented mortal can be a success—and that's more than some geniuses are.

Now, as in Aesop's time, the race doesn't always go to the one who potentially is the swiftest. The *trained* man has no trouble in passing the genius who hasn't improved his talents.

In good times and bad times, in every technical and business field, the *trained* man is worth a dozen untrained ones, no matter how gifted.

The International Correspondence Schools can't make you into a genius. For more than 60 years, however, I. C. S. has been helping its students to become *trained, successful leaders*—and it can do the same for you.

Mark your special interest on the coupon. Don't be like the unsuccessful genius who wastes his life in dreaming of what he intends to do. *Act now!*

## INTERNATIONAL CORRESPONDENCE SCHOOLS



### BOX 5577-L, SCRANTON 9, PENNA.

Without cost or obligation, send me "HOW to SUCCEED" and the booklet about the course BEFORE which I have marked X:

<b>ART</b>	<input type="checkbox"/> Commercial Art <input type="checkbox"/> Magazine and Book Illustrating <input type="checkbox"/> Cartooning <input type="checkbox"/> Show Card and Sign Lettering <input type="checkbox"/> Fashion Illustrating	<input type="checkbox"/> Heating <input type="checkbox"/> Steam Fitting <input type="checkbox"/> Air Conditioning <input type="checkbox"/> Electrician	<b>CIVIL, STRUCTURAL ENGINEERING</b>	<input type="checkbox"/> College Preparatory <input type="checkbox"/> Mathematics <input type="checkbox"/> Commercial <input type="checkbox"/> Good English	<input type="checkbox"/> Stationary Steam Engineering <input type="checkbox"/> Stationary Fireman
<b>AUTOMOTIVE</b>	<input type="checkbox"/> Automobile, Mechanic <input type="checkbox"/> Auto-Elec. Technician <input type="checkbox"/> Auto Body Rebuilding and Refinishing <input type="checkbox"/> Diesel—Gas Engines	<input type="checkbox"/> Business Administration <input type="checkbox"/> Certified Public Accountant <input type="checkbox"/> Accounting <input type="checkbox"/> Bookkeeping <input type="checkbox"/> Stenography and Typing <input type="checkbox"/> Secretarial <input type="checkbox"/> Federal Tax <input type="checkbox"/> Business Correspondence <input type="checkbox"/> Personnel and Labor Relations <input type="checkbox"/> Advertising <input type="checkbox"/> Retail Business Management <input type="checkbox"/> Managing Small Business <input type="checkbox"/> Sales Management <input type="checkbox"/> Salesmanship <input type="checkbox"/> Traffic Management	<input type="checkbox"/> Surveying and Mapping Structural Drafting Highway Engineering Reading Blueprints Concrete Construction Sanitary Engineering	<b>MECHANICAL AND SHOP</b>	<input type="checkbox"/> RADIO, TELEVISION, COMMUNICATIONS
<b>AVIATION</b>	<input type="checkbox"/> Aeronautical Engineering Jr. <input type="checkbox"/> Aircraft Engine Mechanic <input type="checkbox"/> Airplane Drafting	<input type="checkbox"/> Aircraft Drafting Architectural Drafting Electrical Drafting Mechanical Drafting Structural Drafting Sheet Metal Drafting	<input type="checkbox"/> Industrial Engineering Industrial Supervision Foremanship Mechanical Drafting Machine Design-Drafting Machine Shop Practice Tool Design Industrial Instrumentation Machine Shop Inspection Reading Blueprints	<input type="checkbox"/> General Radio <input type="checkbox"/> Radio Operation <input type="checkbox"/> Radio Servicing—FM <input type="checkbox"/> Television <input type="checkbox"/> Electronics <input type="checkbox"/> Telephone Work	
<b>BUILDING</b>	<input type="checkbox"/> Architecture <input type="checkbox"/> Arch. Drafting <input type="checkbox"/> Building Contractor <input type="checkbox"/> Estimating <input type="checkbox"/> Carpenter and Mill Work <input type="checkbox"/> Carpenter Foreman <input type="checkbox"/> Reading Blueprints <input type="checkbox"/> House Planning <input type="checkbox"/> Plumbing	<input type="checkbox"/> Chemical Engineering Chemistry Analytical Chemistry Petroleum—Nat'l Gas Pulp and Paper Making Plastics	<input type="checkbox"/> ELECTRICAL	<input type="checkbox"/> Locomotive Engineer <input type="checkbox"/> Diesel Locomotive <input type="checkbox"/> Air Brakes <input type="checkbox"/> Car Inspector <input type="checkbox"/> Railroad Administration	
			<input type="checkbox"/> Electrical Engineering Electrician Electrical Maintenance Electrical Drafting Electric Power and Light Lineman HIGH SCHOOL	<input type="checkbox"/> TEXTILE	
			<input type="checkbox"/> High School Subjects	<input type="checkbox"/> Textile Engineering <input type="checkbox"/> Cotton Manufacture <input type="checkbox"/> Rayon Manufacture <input type="checkbox"/> Woolen Manufacture <input type="checkbox"/> Loom Fixing <input type="checkbox"/> Finishing and Dyeing <input type="checkbox"/> Textile Designing	
				<input type="checkbox"/> HOME ARTS	
				<input type="checkbox"/> Dressmaking and Designing <input type="checkbox"/> Cookery <input type="checkbox"/> Tea Room Management	

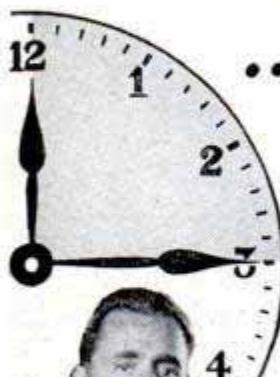
Name \_\_\_\_\_ Age \_\_\_\_\_ Home Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Working Hours \_\_\_\_\_ A.M. to \_\_\_\_\_ P.M.

Occupation \_\_\_\_\_

Special tuition rates to members of the Armed Forces. Canadian residents send coupon to International Correspondence Schools Canadian, Ltd., Montreal, Canada

# Lend Me 15 Minutes A Day



*..and I'll prove  
I can make you  
a NEW MAN*



I'M trading in old bodies for new! I'm taking men who know that the condition of their arms, shoulders, chests and legs—their strength, "wind," and endurance—is not 100%. And I'm making NEW MEN of them!

If you can simply raise your arm and flex it, I can add SOLID MUSCLE to your biceps—yes, on each arm—in double-quick time! I can broaden your shoulders, strengthen your back, develop your whole muscular system INSIDE and OUTSIDE!

## What Only 15 Minutes a Day Can Do

I can add inches to your chest, give you a vise-like grip, make those legs of yours lithe and powerful. I can shoot new strength into your old backbone, exercise those inner organs, help you cram your body so full of pep, vigor and red-blooded vitality that you won't feel there's even "standing room" left for weakness and that lazy feeling! Before I get through with you I'll have your whole frame "measured" to a nice, new, beautiful suit of muscle!

## I Was a 97-lb. Weakling

All the world knows I was ONCE a skinny, scrawny 97-pound weakling. And NOW it knows that I won the title, "The World's Most Perfectly Developed Man." Against all comers! How did I do it? How do I work miracles in the bodies of other men in only 15 minutes a day? The answer is "Dynamic Tension," the amazing method I discovered and which changed me from a 97-pound weakling into the champion you see here!

**FREE—My 32-Page Illustrated Book Is Yours  
—Not for \$1.00 or 10c—but FREE**

Send NOW for my famous book, "Everlasting Health and Strength," 32 pages, packed from cover to cover with actual photographs and valuable advice. Shows what "Dynamic Tension" can do, answers vital questions. Page by page it shows what I can do for YOU.

This book is a real prize for any fellow who wants a better build. Yet I'll send you a copy absolutely FREE. Just glancing through it may mean the turning point in your whole life! So don't put it off—send the coupon to me personally: Charles Atlas, Dept. 84, 115 East 23rd St., New York 10, N. Y.

*Charles Atlas*

Actual photo of the man who holds the title, "The World's Most Perfectly Developed Man."

**CHARLES ATLAS, Dept. 84  
115 East 23rd St., New York 10, N. Y.**

Send me—absolutely FREE—a copy of your famous book, "Everlasting Health and Strength"—32 pages, crammed with actual photographs, answers to vital health questions, and valuable advice to every man who wants a better build. I understand this book is mine to keep, and sending for it does not obligate me in any way.

Name \_\_\_\_\_ Age \_\_\_\_\_  
(Please Print or Write Plainly)

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

MAKE EXTRA  
MONEY

# PLASTICS

LEARN  
AT HOME

There are RICH OPPORTUNITIES for MEN and WOMEN with "know-how" in Plastics. Interstate's new Plastics course tells and shows how to make hundreds of fast selling items out of Plastics. Gives complete training in fabrication, casting, lamination, molding, internal carving, etc., in simple, easy, step-by-step language and pictures. Plastics and Fabricating Kits for 23 valuable Plastic items come with training at no extra cost. START A PLASTICS BUSINESS OF YOUR OWN. No other industry holds such promise for the future. You can make big money manufacturing novelties, toys, signs, etc., in your own home in spare or full time. Don't wait! Learn NOW how Interstate's Plastics Training qualifies you for success in the Plastics field.

PLASTICS AND SUPPLIES FURNISHED  
FOR 23 VALUABLE PROJECTS

INTERSTATE TRAINING SERVICE  
Dept. C3D  
Portland 13, Oregon



## AVIATION!

Pays you more with a schooling at Parks College. B.S. degree in 3 yrs. from Saint Louis University—Aero. Eng., Maint. Eng., Aero Administration.

Non-credit courses for Private, Commercial, Instrument, Flight Instructor and Multi-Engine Ratings.

All Parks schooling approved for G.I. training. Write today.

**PARKS COLLEGE** DEPT. M-43  
EAST ST. LOUIS, ILL.

## How to Make Money with Simple Cartoons



A book everyone who likes to draw should have. It is free; no obligation. Simply address

**CARTOONISTS' EXCHANGE**  
Dept. 94D Pleasant Hill, Ohio



**COWBOY-FOLKSONG STYLE**  
IN TEN EASY LESSONS WITH MY NEW,  
AMAZING, SIMPLE METHOD. KNOWLEDGE OF  
MUSIC IS NOT NECESSARY. IMAGINE YOUR-  
SELF PLAYING "HOME ON THE RANGE" IN JUST A FEW HAPPY HOURS  
OF PRACTICE. ONLY \$1.00 (ADD 10¢ FOR POSTAGE)—SEND TO  
PIERCE GUITAR METHODS—5812 MARKET ST. SAN DIEGO 14, CALIF.

## HELPFUL BOOKS

Send post card asking for FREE catalog  
Popular Mechanics Press, 200 E. Ontario, Dept. 601, Chicago 11

**STUDY AT HOME LAW FREE BOOK!**

### Prepare for the Bar!

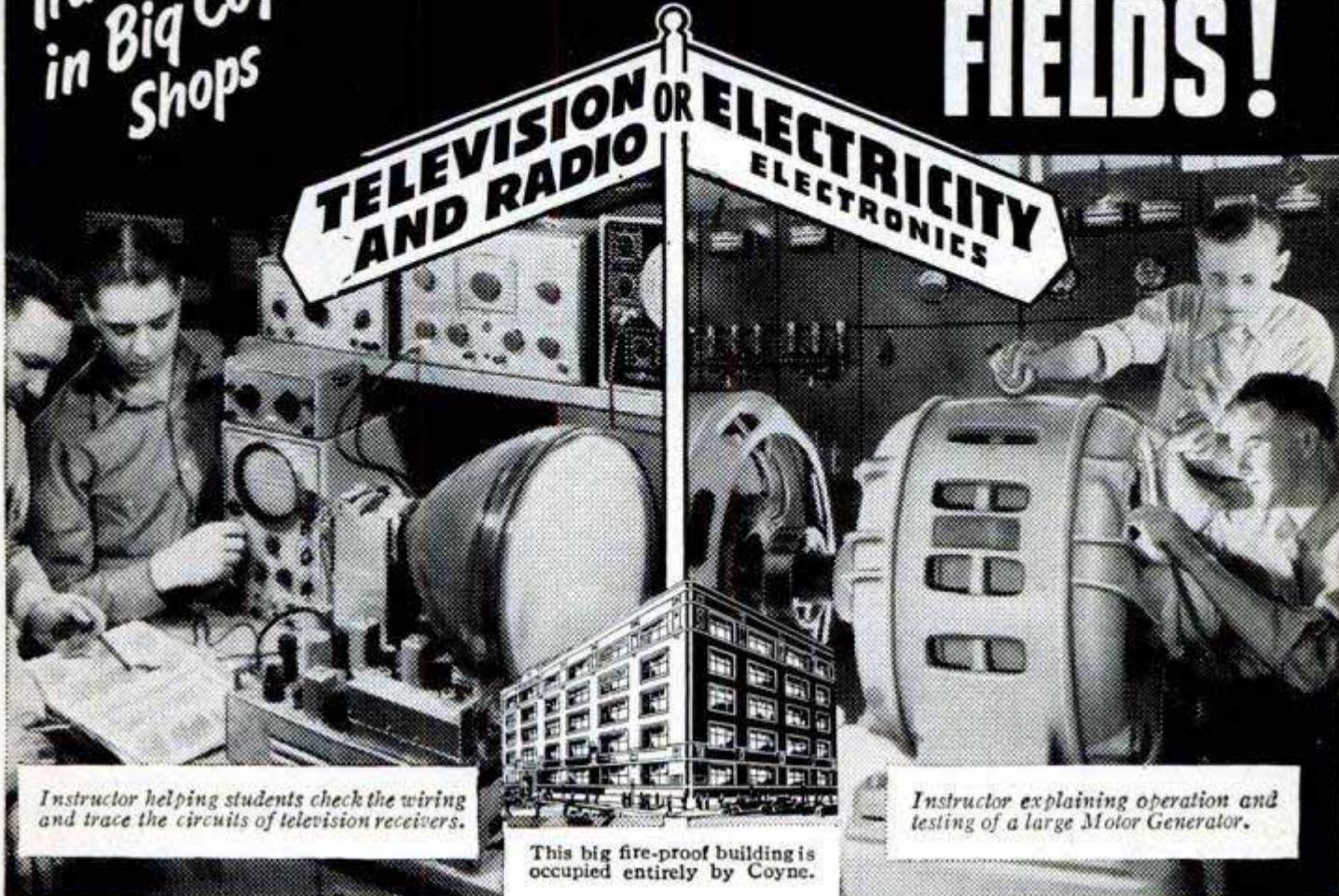
Write today for a copy of our FREE book, "The Law-Trained Man," which gives the bar rules in your state and tells how ambitious men and women since 1890 have been preparing at home in spare time for the practice of law by studying the famous Blackstone bar-training course. All needed instruction material is furnished including big 16-volume law library. Law diploma awarded. Moderate tuition; easy monthly terms. Write for FREE book today!

**BLACKSTONE SCHOOL OF LAW**  
225 N. Michigan Ave., Dept. 54, Chicago 1, Illinois



*Train QUICK  
in Big Coyne  
Shops*

# GREAT OPPORTUNITY FIELDS!



## TRAINED YOUNG AND OLDER MEN— URGENTLY NEEDED IN VITAL FIELDS!

ELECTRICITY—RADIO—TELEVISION—ELECTRONICS—VITAL in defense program. Trained men whether 16 or up to 50 needed. TRAIN QUICKLY for better rating if drafted—Vital job in industry if not.

## TELEVISION-RADIO

Here at COYNE you're trained for Television, Testing, Trouble-Shooting on Radio, Public Address, F. M. Sound Units, etc. Many Coyne trained men in good jobs or own well paying Television-Radio businesses of their own.

## ELECTRICITY

Big future in Power Plant Work, Motors, Industrial Electronics, Armature Winding, Home and Factory Wiring, Appliances, Refrigeration, Maintenance, Illumination, etc. Lifetime job service to Coyne graduates.

## WE TRAIN YOU IN CHICAGO

Our famous Practical-Technical method gives you practical experience on a massive outlay of equipment. Actual shop work plus necessary technical training. You are trained right here in the great Coyne shops. Send for BIG FREE BOOK.

APPROVED  
FOR  
VETERANS

### START NOW—PAY LATER

Enroll now, pay most of tuition after graduation. Special plan for men of draft age. We'll help you get part-time work, if you need it to help pay living costs while at Coyne.

B. W. COOKE, President

**COYNE**  
SCHOOL

ELECTRICITY ★ TELEVISION ★ RADIO ★ REFRIGERATION ★ ELECTRONICS

A TECHNICAL TRADE INSTITUTE  
CHARTERED NOT FOR PROFIT  
Established 1899  
500 S. Paulina Dept. 43-72H  
Chicago 12, Illinois



Mail Coupon for  
Big FREE Book!

Whether you prefer Television-Radio or Electricity, train on actual equipment at Coyne. We will send you a Big, fully Illustrated Book. Indicate below which course interests you most. No salesman will call. Mail coupon TODAY.

B. W. COOKE, President  
COYNE SCHOOL, 500 S. Paulina St.  
Dept. 43-72H, Chicago 12, Ill.

Send me your Big Free book. I am interested in field checked below. This does not obligate me.

TELEVISION-RADIO     ELECTRICITY

NAME.....

ADDRESS.....

CITY..... STATE.....

**COME TO THE  
UNIVERSITY OF HOUSTON  
FOR YOUR  
TECHNICAL AND VOCATIONAL  
TRAINING**

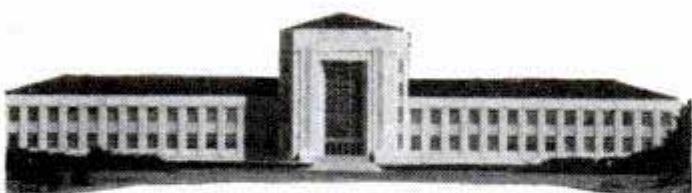
ONE OF AMERICA'S LARGE AND MOST MODERN UNIVERSITIES

**Select** from these fascinating fields

- Aeronautics
- Air conditioning and refrigeration
- Automobile trades
  - Body and paint
  - Mechanics
  - Upholstery and trim
- Diesel
- Electricity
- Electronics

- Industrial mechanics
  - Drafting
  - Machine shop
  - Welding
  - Woodworking
  - Photography
  - Radio
  - Stationary Engineering
  - Television

**PREPARE FOR YOUR FUTURE NOW** . . . with the very latest methods and equipment, at the modern University of Houston School of Technology. For entrance: high school diploma, or over 18 and ability to profit from instruction. Beautiful campus—250 wooded acres in Houston, Texas—the city of tomorrow. Full college activities . . . sports . . . social life. Day or night, short or longer courses. Cooperative work and study programs . . . earn part of tuition and expenses with part-time job in your own career field, while you learn. Personal vocational counselling. Diploma or B.A.S. degree on completion—and job placement assistance. Feb., June, Sept., semesters. G.I. approved.—V. A. on campus. Send for Free illustrated brochure now!



EZEKIEL W. CULLEN BUILDING

**University of Houston, School of Technology**  
**Dept. 143—HOUSTON 4, TEXAS**

Without cost or obligation, please send me fully-illustrated brochure and full particulars. I am interested in subject marked X above.

Name.....Age.....

Address .....

City.....State.....

**Tells How You Can Learn to**

**FREE MOUNT BIRDS!**

**Learn At Home**

Men, Boys, Hunters, Fishermen, mount and save your lovely wild-game trophies. Be a Taxidermist. Mount Birds, Animals, Heads, Fish, Tan skins. YOU learn easily, quickly in spare time. Have a grand home-museum. The finest and the greatest hobby known, for sportsmen. Fun, real profits.

**FREE BOOK**

all kinds of wild-game, and common specimens too. We can positively TEACH YOU. So GRASP this opportunity. RUSH letter or postal for this amazing FREE BOOK. Don't delay. State your AGE. N.W. SCHOOL OF TAXIDERMY, 2564 Elwood Bldg., Omaha 2, Neb.

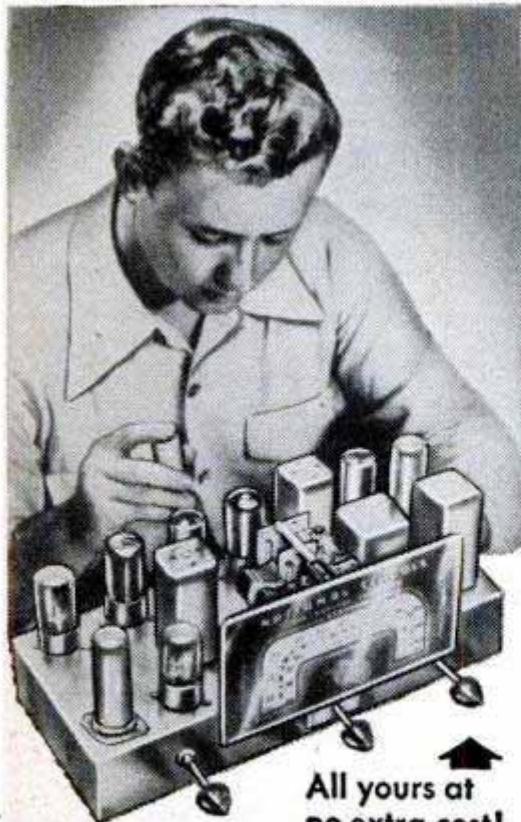
Yes, FREE. Beautiful strange, valuable Book, telling all about Taxidermy. Contains over 100 beautiful game-pictures. And it's yours FREE, if you rush your request. You can mount

&lt;p



**AS A NATIONAL SCHOOLS GRADUATE THERE'S A PLACE FOR YOU IN THIS EXPANDING INDUSTRY...Never before such a demand for you! For never before such a growing industry as today's Television, Radio and other Electronic fields. This industry needs *you*... TODAY... and it needs you as a *trained* man... the kind of man you will be as a National Schools graduate. So don't wait. Start your National Schools training NOW...and enjoy big money, job security, SUCCESS!**

**LEARN from EXPERTS! BE A SUCCESSFUL MAN YOURSELF!** You learn from men who are themselves successful Radio, Television and Electronics technicians. You learn the practical way...by *doing*...with equipment we send you. And you advance quickly, step by step. Get ALL the facts from FREE book and sample lesson. Mail coupon below NOW. Absolutely no obligation.



**Don't put it off! Mail coupon NOW!**

# Get Shop-Method Training *at Home* for success in **RADIO TELEVISION ELECTRONICS**

**One Master Course — One Low Tuition**

**LEARN ALL PHASES — EARN WHILE YOU LEARN**

**You can qualify *FAST* for these big-pay jobs...plus many more**

**Radio Station Technician • Your own Sales and Service Shop • District Service Manager • Inspector Technician • Aircraft Radio Inspector • Special Govt. Positions • Service Specialist • Sound Truck Operator • and many others!**

**ONLY NATIONAL SCHOOLS GIVES YOU THIS PROFESSIONAL**

### **MULTI-TESTER**



Ready to use. Easy to operate. Light enough to carry on service calls.

**DRAFT AGE?** National Schools training helps you get into special service classifications—get higher grades, better pay!

**GET YOUR TRAINING FROM THE RADIO-TV CAPITAL OF THE WORLD**

Let National Schools—a resident technical trade school for nearly 50 years—train you at home for today's unlimited opportunities in Radio-TV.



**NATIONAL SCHOOLS GRADUATES IN BIG DEMAND.** You'll find National Schools graduates in good jobs everywhere. For these are the jobs National Schools trains you for. Such complete, shop-method home training can be your ticket to success...your key to the job happiness you've always wanted. It's up to you. Mail coupon NOW!

**FRIENDLY GUIDANCE AS STUDENT AND GRADUATE.** Our special Welfare Department is constantly at your service. Helps you with your technical and personal problems. Gives you the benefit of its wide industry contacts and experience in helping you after graduation. **BOTH RESIDENT AND HOME STUDY COURSES OFFERED.**

## **NATIONAL SCHOOLS**

**Los Angeles, Calif. • Est. 1905 • In Canada: 193 Hastings St., Vancouver, B.C.**

**APPROVED FOR  
G. I. TRAINING**

**ACT  
NOW**

**YOU GET ALL THE PARTS INCLUDING TUBES** for this superheterodyne receiver... and lots of other equipment...to keep!

**All yours at no extra cost!**

**NATIONAL SCHOOLS, Dept. RB-43  
4000 South Figueroa Street  
Los Angeles 37, California**

**Mail in envelope or paste on postal card**

Mail me FREE "My Future in Radio-Television and Electronics." Also a FREE sample lesson. I understand no salesman will call on me and that there is no obligation.

NAME \_\_\_\_\_ AGE \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

**VETS!** Check here if you are a veteran.  
 Check here if you prefer resident school training.

# ONE THOUSAND GOLDEN OPPORTUNITIES

## MOST GENEROUS OFFER!

We offer men and women everywhere what we believe is the greatest and most generous offer ever made to ambitious people in the U.S.A.! It's like receiving an inheritance or being remembered in your rich Uncle's will! We show you how to make an endless variety of beautiful things. We supply all the materials and instructions and show you how to dispose of your products at tremendous profits! It's a fascinating business and simple to operate. NO TOOLS OR MACHINERY REQUIRED! The casting process is as easy as pouring water out of a glass! Work at home or in your garage!

## FASCINATING BUSINESS OR HOBBY!

Make extremely beautiful imbedded jewelry, bookends, figurines, planters, ceramics, statues, ash trays, lighters, banks, lamps, exquisite gems, fishing lures, keychains, novelties, curios, gadgets, souvenirs, pensets and an unlimited variety of useful and wonderful products! This work is so pleasant and fascinating that many take it up as a grand and profitable hobby.

## UNLIMITED POSSIBILITIES!

The ONLY limitation is your imagination. No special talent, no previous experience, no special tools or machinery required! We will supply you with raw materials or finished products, start you in business and GUARANTEE your sales or money refunded!

## HOW TO START

We can't hand you cash . . . but we offer you something that ordinarily takes thousands of dollars and many years to establish; yet it's all yours for the asking! We urge you to investigate this unusual offer today. You'll be excited and thrilled over the many wonderful opportunities we hand you ABSOLUTELY FREE! Send only 25c for our big 56 page Catalog describing the fascinating process of creating and manufacturing mentioned above. Do it today . . . don't delay anything that could be so important to your future!

## PLASTICAST CO. (DEPT. C)

P.O. Box 6737 (Write to  
Chicago 80, Ill. nearest address) P.O. Box 987  
Palo Alto, Calif.  
CANADIAN READERS: Please send 35c to: Canadian Ind. Plastics,  
1056½ W. Pender St., Vancouver, B. C.

## Get into Good Paying AUTO BODY and FENDER WORK

**BIG DEMAND** in Auto Body and Fender work. Start training now in your spare time at home for good pay work. Practical shop experience included. U.E.I. Training covers metal work, welding, painting, etc. Placement service—or we will show you how to start your own shop. Behind U.E.I. TRAINING is a large national organization founded 1927. Write today for FREE FACTS—No obligation.

Write for  
Free Facts

AUTO-CRAFTS DIVISION • UTILITIES ENGINEERING INSTITUTE  
2523 SHEFFIELD AVE., DEPT. XC-20, CHICAGO 14, ILLINOIS

O.K.! Rush full facts.

Name \_\_\_\_\_ Age \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Check here for information if you are under 17.



Before  
You Buy Your  
Trailer—  
**READ...**

## TRAILER TOPICS MAGAZINE

It brings you the latest in Trailer Coaches—Equipment—Accessories—Trailer Trips—Trailer Parks and many other interesting monthly features at only \$3.00 for 2 years.

(6 MONTH TRIAL SUBSCRIPTION \$1.00)

## TRAILER TOPICS MAGAZINE (Room 1571)

28 East Jackson Blvd., Chicago 4, Ill.

## RUPTURE



RELIEF...OR YOUR MONEY BACK

Original, patented Web, copied but never matched. Users say it's best ever. Relief or no cost to you. Write:

WEB TRUSS CO., Dept. M-4, Hagerstown, Md.

## GROW MINIATURE TREES

Grow authentic, LIVE dwarf trees!  
Fascinating hobby! Fabulous profit!

SEND FOR FREE SEED & INSTRUCTIONS!



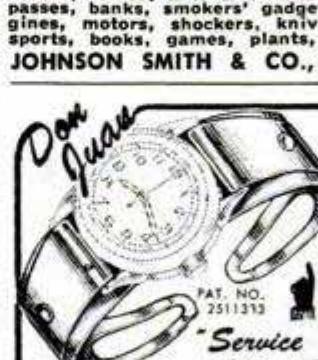
MINIATURE NURSERY CLUB  
Dept. 5-H, P. O. Box 18696, Rimpau Sta.  
Los Angeles 19, California

## Hand Guide!

OZMENT (INVENTOR), 34-P, ST. LOUIS, MO. (BX665)

## Catalog OF 3000 Novelties 10c

Send 10c for amazing catalog of novelties, live animals, scientific supplies, hobbies, funmakers, planes & boats, looms, magic tricks, joke articles, unusual seeds, gadgets, timesavers, cameras, optical goods, projectors, movies, lucky jewelry, religious novelties, disguises, musical instruments, stamps, coins, puzzles, fortune tellers, radios, auto & bike accessories, telescopes, magnifiers, compasses, banks, smokers' gadgets, artists' supplies, printing sets, engines, motors, shockers, knives, billfolds, fireworks, guns, rifles, sports, books, games, plants, etc. Send name, address & 10c to: JOHNSON SMITH & CO., Dept. 649, Detroit 7, Michigan



Here's Why  
IT'S SO PRACTICAL!

- Has only 2 moving parts
- No hidden springs • Hygienic
- Perspiration Proof • Non-Corrosive
- Non-Magnetic • Conforms to the wrist — most comfortable to wear
- Fully guaranteed

RESILIENT STAINLESS STEEL

Contour CLASP-ON  
WATCH BAND FOR MEN

WRIST SIZES

Small 6 ¼" — Medium 6 ½" — Large 7"

At your Jeweler or write direct  
Illustrated Brochure on request

Don Juan WATCH BANDS

29 E. MADISON ST.  
CHICAGO 2, ILL.

NOW...from D.T.I.'s MILLION DOLLAR TRAINING CENTER

Learn to master  
**TELEVISION**  
RADIO - ELECTRONICS  
by getting **EVERYTHING YOU NEED!**

NOW—  
get training  
to suit your NEEDS  
TAKE YOUR  
CHOICE

Come to  
D.T.I.'s  
great **CHICAGO**  
**LABORATORIES**  
...one of the Nation's FINEST!

Now, in the heart of the nation's TV Center, you can get all of your preparation in D.T.I.'s big, modern, wonderfully equipped training laboratories. Loads of commercial equipment and ample, well qualified instructors help you get a thorough, practical preparation in the SHORTEST POSSIBLE TIME. Part time student Employment assistance can help you pay your way while in training.

**EMPLOYMENT SERVICE**

As soon as you complete either the Chicago Laboratory or Home Training, you'll find D.T.I.'s grand Employment Service ready to help you start earning real money. Get full facts. Mail coupon today.

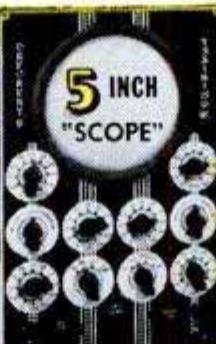
**MILITARY SERVICE:** If subject to military service, the training information we have for you should prove very helpful. Mail coupon today.

**ACT NOW! MAIL COUPON TODAY**  
Get this publication **FREE!**

**DeFOREST'S TRAINING INC.** Dept. PM-4-J  
2533 N. ASHLAND AVE., CHICAGO 14, ILL.

I would like your Opportunity News Bulletin showing "89 Ways to Earn Money In Television-Radio-Electronics; also, complete facts about the training opportunity made possible by your organization.

Name \_\_\_\_\_ Age \_\_\_\_\_  
Address \_\_\_\_\_ Dept. \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



ABOVE: You build and keep this big 5 INCH commercial-type oscilloscope — one of the most useful test units used in TV today.

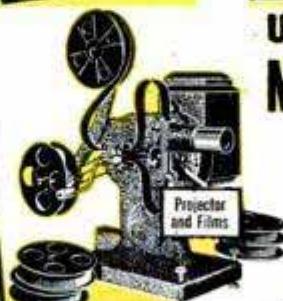


**21 INCH**

You build and keep this outstanding 21 INCH—sharp image—D.T.I. quality-engineered TV set. Can be readily converted to receive U.H.F.

**Use 16 mm.  
MOVIES**

Only D.T.I. provides you with the loan of visual training movies at home to help you master important basic points faster . . . easier . . . better!



"ONE OF AMERICA'S FOREMOST  
TELEVISION TRAINING CENTERS"  
—Established 1931—



**De FOREST'S TRAINING, INC.**  
AFFILIATED WITH  
**De VRY Technical INSTITUTE**  
CHICAGO 14, ILLINOIS





**TRAIN *FASTER*—TRAIN *BETTER*—TRAIN *EASIER***  
IN 10 MONTHS—OR LESS—FOR

# RADIO-TELEVISION

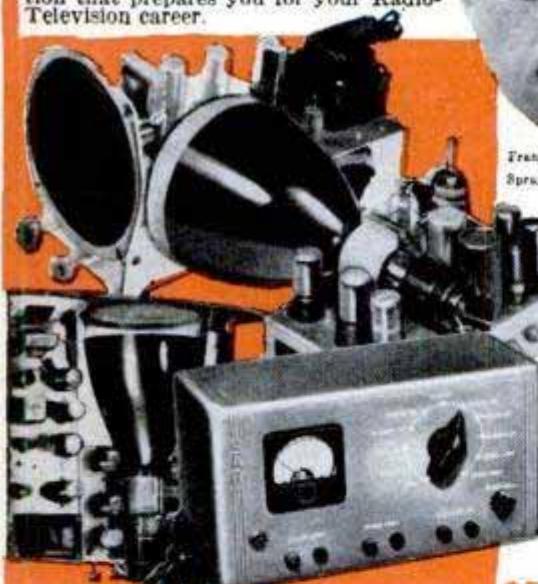
Our 21st Year Training Men for Greater Incomes and Security in Radio-Television

## I SEND YOU **18 BIG KITS**

of Radio Television parts and equipment. Much of your training will be actual construction and experimentation . . . the kind of truly PRACTICAL instruction that prepares you for your Radio-Television career.



Frank L. Sprayberry  
President  
Sprayberry Academy  
of Radio



**YOU BUILD** the Television set and the powerful superhet radio receiver shown above IN ADDITION to the other test units shown here. (Many are not illustrated.)

Approved for Veterans under the G. I. Bill



I invite you to get all the facts—  
**FREE TO YOU 3 BIG  
RADIO-TELEVISION BOOKS**

Rush coupon for my three big Radio-Television books: "How to Make Money in Radio-Television," PLUS my new Illustrated Television Bulletin PLUS an actual sample Sprayberry Lesson —ALL FREE. No obligation and no salesman will call. Mail coupon NOW!

## **NEW! NO OBLIGATION PLAN**

You Have No Monthly Payment Contract to Sign  
Pay For Your Training as You Earn and Learn

You can get into Radio-Television, today's fastest growing big money opportunity field, in months instead of years! My completely new "package unit" training plan prepares you in as little as 10 months or even less! *No monthly payment contract to sign—thus NO RISK to you!*

This is America's finest, most complete, practical training—gets you ready to handle any practical job in the booming Radio-Television industry. Start your own profitable Radio-Television shop . . . or accept a good paying job. I have trained hundreds of successful Radio-Television technicians during the past 21 years—and stand ready to train you, even if you have no previous experience! Mail coupon and get all the facts—FREE!

### Valuable Equipment Included With Training

The new Sprayberry "package" plan includes many big kits of genuine, professional Radio-Television equipment. You perform over 300 demonstrations, experiments and construction projects. You build a powerful 6-tube 2-band radio set, multi-range test meter, signal generator, signal tracer, many other projects. All equipment and lessons are yours to keep . . . you have practically everything you need to set up your own profitable Radio-Television service shop.

### Earn Extra Money While You Learn!

All your 10 months of training is IN YOUR HOME in spare hours. Keep on with your present job and income while learning. With each training "package" unit, you receive extra plans and "Business Builder" ideas for spare time Radio-Television jobs. New television stations everywhere, open vast new opportunities for trained Radio-Television Technicians—and those in training. If you expect to be in the armed forces later, there is no better preparation than practical Sprayberry Radio-Television training.

## SPRAYBERRY ACADEMY OF RADIO

111 NORTH CANAL ST.  
Dept. 10-V, Chicago 6, Ill.

### SPRAYBERRY ACADEMY OF RADIO, Dept. 10-V

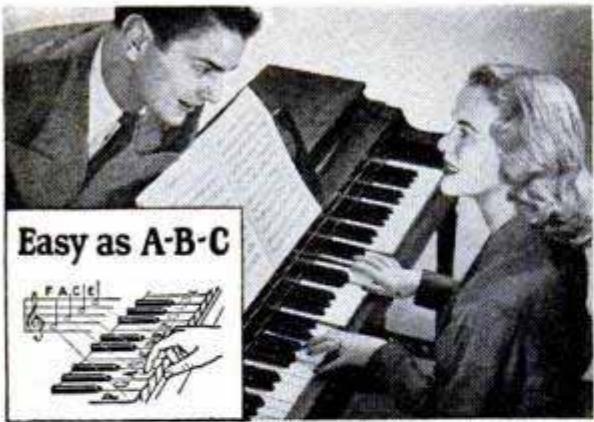
111 North Canal St., Chicago 6, Ill.

Please rush to me all information on your 10-MONTH Radio-Television Training Plan. I understand this does not obligate me and that no salesman will call upon me. Be sure to include 3 books FREE.

Name..... Age.....

Address.....

City..... Zone..... State.....



## Be Your Own MUSIC Teacher

**LEARN AT HOME THIS QUICK MONEY-SAVING WAY**

Simple as A-B-C. Your lessons consist of real selections, instead of tiresome exercises. You read real notes—no "numbers" or trick music. Some of our 900,000 students are band LEADERS. Everything is in print and pictures. First you are told what to do. Then a picture shows you how. Then you play it yourself and hear how it sounds. Soon you are playing your favorite music. Mail coupon for Free Book and Print and Picture Sample. Mention your favorite instrument. U.S. School of Music, Studio C304, Port Washington, N.Y.

U. S. School of Music, Studio C304, Port Washington, N.Y.  
Please send me Free Booklet and Print and Picture Sample. I would like to play (Name Instrument).

Instrument \_\_\_\_\_ Have you  
Instrument \_\_\_\_\_

Name \_\_\_\_\_ Please Print \_\_\_\_\_

Address \_\_\_\_\_

**FREE  
BOOKLET**

## Can A Man My Age Become A Hotel Executive

**Even Though He Has No Previous Hotel Experience?**

Would you like to step into a well-paid position in a Hotel, Club, essential Defense Housing Project? Would you like to look forward happily to the future? The success of Lewis graduates from 20 to 50 PROVES you can!

**Nelson Davis, Newspaper Route Man,  
Now Assistant Manager, Knew  
Nothing About Hotel Work**

"I had nothing to look forward to but monotonous work and poor pay. Then I answered a Lewis advertisement and shortly afterwards, enrolled. Soon after graduation, the Lewis School placed me in a fine Pennsylvania hotel. Now Assistant Manager. Lewis Training did it all."



**Step Into a Well-Paid Hotel Position  
FREE Book Gives Fascinating Facts**

Our FREE Book, "Your Big Opportunity," explains how you can qualify for a well-paid position at home, in leisure time; tells how you are registered FREE of extra cost in the Lewis National Placement Service. Most important, it shows how you can be a Lewis Certified Employee—certified to "make good" when placed in a position. Mail the coupon NOW!

**Course Approved for ALL Veteran Training**

**LEWIS HOTEL TRAINING SCHOOL  
Room WD-324, Washington 7, D.C.**

**37<sup>th</sup> SUCCESSFUL  
YEAR**

Send me the Free Book, "Your Big Opportunity," without obligation. I wish to know how to qualify for a well-paid position at home, in my leisure time.

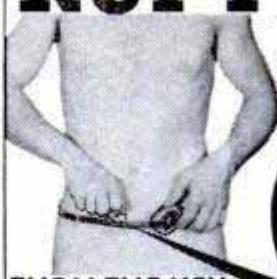
Name \_\_\_\_\_ (Please Print Name & Address)

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Check here if eligible for Veteran Training.

## RUPTURED?



**TURN THE KEY "LOCK-O-MATIC"**

And lock cushion  
against the opening

LOCK-O-MATIC holds rupture under all conditions of work or play... prevents nervousness, gas pains and backache caused by uncontrolled rupture... helps nature rebuild weakened muscles. Give up your old strap and spring trusses that enlarge the opening. End your troubles now with the amazing LOCK-O-MATIC. **MONEY-BACK GUARANTEE** ... Write for FREE booklet: "RUPTURE FACTS"

**LOCK-O-MATIC SALES CO.**

21 So. Third St., Dept. P-4, Minneapolis, Minn.

## LEARN MEAT CUTTING



Train quickly in 8 short weeks for a bright future with security in the vital meat business. Big pay, full-time jobs—HAVE A PROFITABLE MARKET OF YOUR OWN! Pay after graduation. Diploma given. Job help. Thousands of successful graduates. Our 28th year! Send NOW for big, new illustrated FREE catalog. No obligation. GI approved. **NATIONAL SCHOOL OF MEAT CUTTING, Dept. 50-Q, Toledo 4, Ohio**

**DAN LURIE**

"America's Most  
Muscular Man"  
—on television's  
"Big Top."

**FAMOUS DAN LURIE  
BARBELLS**

with 4 courses—low factory prices  
50 lb. set... \$ 8.48 | 150 lb. set... \$20.48  
100 lb. set... 13.98 | 200 lb. set... 25.98

Write for Order by Mail: 50% with order, bal. C.O.D.  
Free Catalog Extra wts. 13¢ per lb., F.O.B. plant

**DAN LURIE BARBELL CO.**  
1701-M-4 Pitkin Ave., Dept. 360-D, Brooklyn, N.Y.

Inquire NOW about HOME STUDY COURSES in  
**WATCHMAKING and ENGRAVING**

KANSAS CITY SCHOOL OF WATCHMAKING

1218 Admiral Blvd. — Kansas City 6, Missouri

## LEARN CARTOONING at home in spare time

Simplified Landon Picture Chart Method makes progress quick, exciting, easy. Former Landon students include creators of "Steve Canyon," "Freckles," "Out Our Way," "Winnie Winkle," "Regular Fellers," "The Neighbors," "Strange as it Seems" and many others. Earn while learning. Rush 10¢ for Picture Chart (to test your ability) and full details. Please state age.

Landon School of Cartooning, 5304 CTS Bldg., Cleveland, O.



## MECHANICAL DENTISTRY



To make Crowns, Plates, Bridgework, etc., for Dentists. Easy practical way to learn mechanical dentistry at home in spare time. FULL EQUIPMENT OF TOOLS AND MATERIALS INCLUDED WITH COURSE. Low tuition. Easy terms. Write for FREE BOOK about this money-making profession that is not affected by machine age.

**MCCARRIE SCHOOL OF MECHANICAL DENTISTRY**  
207 N. Broad St., Dept. 14, Philadelphia 7, Pa.

## 2-BEDROOM HOME \$890

BUILD YOUR OWN

Living room 12x14. Master bedroom 10x12. Nursery-den 10x11. Kitchen 7x10. Bath 5x8. Concrete block built. Blue prints, material lists, exact instructions for 3 designs. **\$1** ppd.

**SUNNY-CAL HOMES, Box 309-D-4 Hollywood 28, Calif.**

Leonard C. Lane, B.S., M.A.  
President of Radio-Television  
Training Association, Exec. Dir.  
of Pierce School of Radio and  
Television.

I GIVE YOU  
**MORE** EQUIPMENT  
TO TRAIN YOU BETTER

Set up your own home laboratory with the 15 BIG TV-Radio kits we send you. You build AND KEEP your own complete BIG SCREEN TV RECEIVER, Super-Het Radio Receiver, R.F. Signal Generator, Combination Voltmeter-Ammeter-Ohmmeter, C-W Telephone Receiver, AC-DC Power Supply. Everything is furnished complete, including all tubes, plus big TV picture tube.

GET MORE!

LEARN MORE!

EARN MORE!

I PREPARE YOU AT HOME IN YOUR SPARE TIME  
MORE

TRAINING TO FIT YOU  
FOR THE BETTER PAY JOBS

Thousands of new jobs will open up right in your own state, now that the government has lifted restrictions on new TV stations. My simple, successful methods have helped hundreds of men — most of them with NO PREVIOUS TRAINING — find places in America's booming TELEVISION and Electronics industries. You too can get the success and happiness you always wanted out of life within months... studying at home... as I train you to become a full-fledged TV TECHNICIAN. Many of my students make as much as \$25.00 a week repairing Radio-TV sets in their spare time while learning... pay their entire training almost from the very beginning from spare time earnings... start their own profitable service business.

But I don't stop after I qualify you as a TV Technician... although right there you can choose from among dozens of fascinating careers! I continue to train you — AT NO EXTRA COST — to qualify for even better pay in the BETTER JOBS that demand FCC licenses, with my...

### FREE FCC COACHING COURSE

PREPARES YOU AT HOME FOR YOUR FCC LICENSE.

THE BEST JOBS IN TV AND RADIO REQUIRE AN FCC LICENSE.

Given at NO EXTRA COST after TV Theory and Practice is completed.

### NOW! ADVANCED FM-TV TRAINING

If you have previous Armed Forces or civilian radio experience—my ADVANCED COURSE can save you months of training. Full theory and practical training... complete with kits, including BIG SCREEN TV RECEIVER and FREE FCC License Coaching Course.

### FREE EMPLOYMENT ASSISTANCE

My vocational adviser will help you obtain a good-paying job in the locality of your choice.

### RADIO-TELEVISION TRAINING ASSOCIATION

1629 Broadway, Radio City Station, New York City 19, N. Y.

LICENSED BY THE STATE OF NEW YORK

THOUSANDS OF NEW JOBS IN  
**TELEVISION**  
MORE

**MORE** VALUE!

YOU GET A ROUND TRIP TO  
NEW YORK CITY  
AT NO EXTRA COST

FROM ANYWHERE IN THE U.S. OR CANADA — I pay your way to New York and return, PLUS 2 FREE weeks, 50 hours of advanced instruction and shop training at the PIERCE SCHOOL OF RADIO & TELEVISION. You use modern electronics equipment, including student-operated TV and Radio stations. You go behind the scenes of New York's big Radio-TV centers, to study first hand. And I give you all this AT NO EXTRA COST! (Applies to complete Radio-TV course only.)

Only RTTA makes this amazing offer.

I GET MY

GRADUATES GOOD PAYING JOBS

"Thanks to your training, I qualified for a good job as a Receiver Tester at Federal Telephone and Radio."

— Paul Frank Seier



"I'm making good money in my own business, repairing and installing radio and TV sets — thanks to your training."

— Irwin Polansky



"Your excellent instruction helped me get my present job as an airport radio mechanic for American Airlines."

— Eugene E. Basko



"I'll always be grateful to your training which helped me get my present fine position as Assistant Parts Manager."

— Norman Weston



Many others working at NBC, RCA, CBS, DuMont, Philco, Emerson, Admiral and other leading firms.

## VETERANS!

MY SCHOOLS FULLY APPROVED TO TRAIN VETERANS UNDER NEW G.I. BILL! If discharged after June 27, 1950 — CHECK COUPON BELOW!

Also approved for RESIDENT TRAINING in New York City... qualifies you for full subsistence allowance up to \$160 per month.

### MAIL COUPON TODAY!

BOTH FREE! New Illustrated Book and Sample Lesson. Learn How My Simple Methods Make Success Easy!

### NO SALESMAN WILL CALL!

Mr. Leonard C. Lane, President  
RADIO-TELEVISION TRAINING ASSOCIATION  
1629 Broadway, Radio City Station  
New York 19, N. Y.

Dept. M-4

Dear Mr. Lane: Mail me your NEW FREE BOOK and SAMPLE LESSON that will show me how I can make BIG MONEY in TELEVISION. I understand I am under no obligation and no salesman will call.

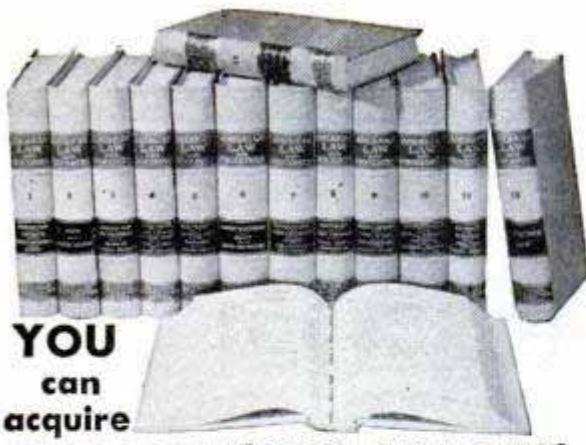
(PLEASE PRINT PLAINLY)

Name \_\_\_\_\_ Age \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

CHECK HERE IF:  VETERAN  NON-VETERAN



**YOU  
can  
acquire**

## **LAW NIGHTS AT HOME! L.L.B. DEGREE**

LaSalle's famous Law Library—used as reference in many Law libraries and Law offices—has enabled thousands to master Law surprisingly fast, in spare hours at home, for business and professional advancement.

These 14 remarkable volumes, compiled by leading professors and lawyers, cover the whole basic field of Law in condensed, orderly, simplified manner.

You advance rapidly with this great library, plus special lectures furnished. We guide you step-by-step with personalized Problem Method of instruction . . . you learn by doing—handling legal problems—not by memorizing rules.

Send for two FREE 48-page booklets, "Law Training for Leadership," and "Evidence," answering questions about Law and its value to you, and telling how LaSalle Law graduates are winning rapid advancement in business and public life. Mail coupon below. No obligation.

### **LA SALLE EXTENSION UNIVERSITY A Correspondence Institution**

417 S. Dearborn St. Dept. 464-L Chicago 5, Ill.

Send me your two FREE booklets described above, without obligation.

Name \_\_\_\_\_ Age \_\_\_\_\_

Street \_\_\_\_\_

City, Zone & State \_\_\_\_\_

## **ENGINEERING DEGREE IN 27 MONTHS**

### **Big Demand for Graduates**

Aeronautical, Chemical, Civil, Electrical, Mechanical and Radio Engineering (inc. TV and Electronics)

Hundreds of young men are earning B. S. ENGINEERING DEGREES annually in this recognized institution — year around operation. New terms start quarterly. Many students earn a major part of their college expenses in this large industrial center.

Low tuition. Competent instruction. Thorough, intense, practical program. Modern, well-equipped laboratories including new physics laboratory and modern wind tunnel. Individualized instruction emphasized.

Government approved for G.I.'s. Engineering preparatory courses. Students from 48 states and 21 foreign countries. Enter June, September, December, March. Send coupon for free catalog and full information. Enroll now.

SEND COUPON TODAY

## **INDIANA TECHNICAL COLLEGE**

543 E. Washington Boulevard  
Fort Wayne 2, Indiana

Please send me free information on B.S. Engineering Degree in 27 months as checked.

Aeronautical.  Chemical.  Civil.  Electrical.  
 Mechanical.  Radio-Television

Name \_\_\_\_\_

Address \_\_\_\_\_

## **FIX LOOSE CHAIR RUNGS**



New super-strong plastic-base glue repairs and joins wood, linoleum, pottery, leather, fabrics. Quick-drying, easy to use. Washes off hands and clothing instantly. B.3.1

## **ELMER'S GLUE-ALL**

IF IT'S *Borden's* IT'S GOT TO BE GOOD!



## **YOU CAN LEARN TO BE AN ARTIST**

Free booklet shows how to earn money  
• Cartooning • Lettering • Drawing

Learn how WSA-trained artists earn excellent livings in the fascinating field of art. Step-by-step home study method, perfected in 39 years. Course includes 2 complete art outfits, Life Class Book (human figure), handbook "How to sell your art work," GI approved for eligible veterans. Write for FREE "Art for Pleasure & Profit" booklet today. Include name, age and address. No salesman will call.

Washington School of Art  
Studio 124K Washington 5, D. C.

### **EASY & PROFITABLE RAISE FISHWORMS**

Breeders' Manuals  
'REDWORMS' & 'MEALWORMS'  
HOW TO BREED - SELL - SHIP  
\$100 EACH - POSTPAID  
MONEY-BACK GUARANTEE

### **FISHWORMS**

BREEDERS - \$100, \$50 - \$15.00, 1,000 - \$8.50  
FISHBAIT - FISHWORMS OR MEALGRUBS  
200 - \$1.00, 425 - \$2.00, 1,000 - \$4.50. POSTPAID  
ANYWHERE - ANYTIME. FREE "KEEP-EM-  
ALIVE" INSTRUCTIONS. DIX DOCK, KENT 10, OHIO



## **LEARN LOCKSMITHING**

Learn Locksmithing and Keymaking from  
Experts in Your Spare Time at Home!

Locksmiths in big demand! No layoffs, no slow seasons! Age no disadvantage. Year-round, steady income in this permanent, respected field. Full or part time. Practical, illustrated lessons show how to make money even while learning! All materials, special tools supplied.  
(Send for FREE BOOKLET.)

INSTITUTE OF LOCKSMITHING, Dept. P41  
15 PARK AVE. RUTHERFORD, N. J.  
Lic. & Approved State of N.J. VA Approved

ARE YOU DOING YOUR SHARE?  
USE EASTER SEALS.



## **RAISE RABBITS A FULL TIME BUSINESS OR WELL PAID HOBBY**

Thousands of Raisers Needed To Meet  
The Tremendous Demand For MEAT  
- FUR - LABORATORY - BREEDING  
STOCK.

### **Know the Facts**

Illustrated Book  
Describing 25 Breeds, Breeding and Care,  
Markets, Etc. 10 Cents. We Are Association  
of Breeders who want to see you start right!

AMERICAN RABBIT ASS'N. 36 ARBA Bldg., Pittsburgh, Pa.

### **ELECTRIC**

ELECTRIC APPLIANCE SERVICE NEWS

GET SAMPLE COPY

Write

### **APPLIANCE REPAIRMEN**

Find all the sources of supply for parts on  
all ELECTRIC APPLIANCES . . . Washing  
Machines, Vacuum Cleaners, Ranges,  
Sewing Machines, Small Appliances, etc.

The Only Publication Especially  
for the Appliance Repairman

SEND ONLY 20¢ IN STAMPS  
OR COINS FOR SAMPLE COPY

ELECTRIC APPLIANCE SERVICE NEWS  
Dept. M-30 176 W. Adams St. Chicago 3, Ill.



**JOHN HARRINGTON**  
Research Director  
Autosphere Corp.

**Would you like to know the truth about your car?  
For example:**

- Actual Road Horsepower
- Stopping Distances in feet
- Pick-up ratings at any speed
- Engine pulling power
- Hill climbing ability
- Best gas for your car
- Condition of your brakes

- Cause of any motor trouble
- Actual results of repair jobs
- Effect of wind and other resistance
- Wheel alignment and chassis checks

**New Type of Device**

I am going to tell you about a precision instrument that quickly gives you all of this information and much MORE. But let's get one thing clear — it is NOT a vacuum gauge of any kind! I tell you this because some people have confused my PERFORMETER with the common vacuum gauge since — at first glance — they may look similar. THE COMPARISON ENDS RIGHT THERE!

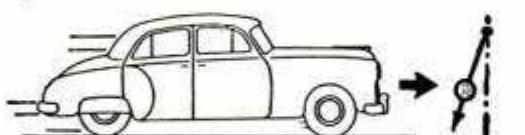
**No Connections to Make**

The PERFORMETER requires NO CONNECTIONS of any kind to the engine, transmission etc., and is quickly mounted on steering column or dash with the chrome mountings provided. The PERFORMETER operates by man's oldest law—the pendulum principle. It is the most accurate car testing device ever to come on the market at a price the average man can afford. What's more, anyone can understand and USE the PERFORMETER every day!

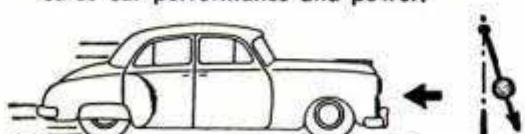
**Quality Instrument**

The PERFORMETER lasts a lifetime and is as important to the wise car owner as the speedometer, oil gauge or ammeter. It is made by European craftsmen with the integrity and precision of a jeweled movement. It is an entirely self-contained unit. When you hold it in your hands, believe me YOU KNOW you have a real, quality, professional instrument everyone admires. It contains a balanced pendulum damped by baffles in oil and is hermetically sealed. It even has an automatic temperature and pressure compensator for any climatic and altitude variations.

To get the basic operating idea of the PERFORMETER, just visualize a pendulum hanging in your car. When you step on the gas the force of inertia overcoming gravity will push the pendulum backward. On the other hand, when you step on the brake, the same force will push the pendulum forward. These two basic, universal motions are translated to simple dial readings which provide you with all of the facts about your car's performance.



Step on the gas, the pendulum swings backward. The amount it moves indicates car performance and power.



Step on the brakes, the pendulum swings forward. The amount it moves precisely indicates condition of brakes.

# Let me tell you how you can TEST YOUR CAR

**Amazing new imported device makes it simple for anyone to road test a car's performance. It saves money on gas and repairs; completely replaces "guesswork" with car facts.**

**Anyone Can Use**

Whether you are technical minded or not; whether you do your own repairs or not; whether you are a "bug" on cars or not; YOU find the PERFORMETER gives you endless information, endless pleasure, endless savings.



**Variety of Uses**

This remarkable device has uses extending from the man who wants to be sure his wife is driving a car with safe brakes, to the sports car fan who is interested in actual brake horse power and optimum gear shift positions.

**Unconditionally Guaranteed**

The PERFORMETER is UNCONDITIONALLY GUARANTEED to please you or the full purchase price is promptly refunded. Every major motor magazine in the U.S. has tested and praised the PERFORMETER and many motorists have written us that this wonderful instrument fills a long felt need.

**Free Book on Car Testing**

With every PERFORMETER you receive as a gift a free copy of a 64 page book which tells you all about road testing. Whether you want to become a professional expert, or just learn about your car and have fun, this book tells you how. Also contains COMPARATIVE TEST DATA on all major U.S. and foreign cars.

**Immediate Shipment**

Act now. PERFORMETER is still in limited supply in the U.S. Fill out coupon below and send your order today. Enclose payment with order and we ship POSTPAID. If you prefer, we will send C.O.D., you pay postman purchase price plus postage and C.O.D. fee. But either way, DON'T DELAY. Each unit sent complete with both dash and steering column chrome mountings plus 64 page book on road testing.

## PERFORMETER

TRADE MARK

Autosphere Corp., Dept. M4  
11 East 48th Street, New York, N. Y.

Gentlemen:

Rush me ..... PERFORMETER at \$22.50 each.

I enclose payment of .....

Name .....

Address .....

City ..... Zone ..... State .....

Send COD, I will pay postman \$22.50 plus postage charges.

It is understood that the PERFORMETER is UNCONDITIONALLY GUARANTEED and that if I am not satisfied my money will be promptly refunded.

Jobbers Inquiries Invited

No Shop  
Needed

## Operate YOUR OWN Business



### Clean & Mothproof rugs, upholstery IF NOW EMPLOYED:

You can operate in spare time and build up a permanent profitable full-time business

Can you qualify? . . . If you are dependable, honest and willing to work, send for FREE Booklet explaining how you can become "your own boss" in a growing business of your own. You'll use proven successful methods of established DURACLEAN Dealers. Service rendered "in the home," offices and public buildings. Easy to learn.

DURACLEAN cleans by absorption! No scrubbing. No soaking or shrinkage. Fabrics dry in just a few hours. Dirt, grease and many unsightly spots vanish as if by magic . . . colors revive. Upholstery and floor covering last longer. Results often almost unbelievable.

DURAPROOF kills moths and carpet beetles. Makes material resistant to both! Another year 'round service. DURAPROOF to our knowledge, is the only mothproof service backed by a National Money Back, 4 YEAR WARRANTY for your customer's protection.

These services are Nationally Advertised! Leading furniture and department stores recommend DURACLEAN Dealer's service. Almost every building in your territory houses a potential customer. Even auto dealers buy your service to revive upholstery in used cars.

Some dealers establish a shop or an office after business has grown. Others continue to operate from their own home. Alert dealers can average \$5.00 hourly gross profit on service they render and \$3 on EACH of their servicemen at National Price Guide charges.

Territories are limited! Write immediately for FREE 16-page illustrated Booklet. Easy Terms. No obligation. Write TODAY!

Duraclean Co., 3-164 Duraclean Bldg., Deerfield, Illinois



## ROOM FOR EVERYBODY in Old Town Oceanboat

TAKE the whole family for a spin in your fast, big (16-foot) outboard boat! Well-braced for the heaviest motors, planes beautifully. Safe and seaworthy. Bows flare to keep your passengers dry. Planking's painted gleaming white. Built for years of service.

FREE CATALOG illustrates boats for sport, for the family, and all kinds of canoes, outboard boats, rowboats and dinghies.

## OLD TOWN BOATS

Old Town Canoe Co., 944 Middle St., Old Town, Maine  
PLEASE SEND ME FREE CATALOG

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_

LOW OVERHEAD-LARGE VOLUME SALES & SMALL PROFITS  
BRING YOU THESE "LOWEST PRICES!"

15 YEARS AT THIS ADDRESS

WHAT GOOD IS A TIRE WITHOUT A TUBE?

TUBE GIVEN WITH EVERY TIRE AT NO EXTRA COST

**Why Pay More!**

SPRING SPECIALS-AT LOW PRICES  
SAVE TIME - SAVE MONEY - SEND THIS AD  
GOOD USED TIRES - NOT RECAPS  
Be Wise-A TRIAL OF ONE TIRE WILL  
CONVINCE YOU.

WE GIVE WHAT WE ADVERTISE

20 MONTHS WRITTEN GUARANTEE

600x16	\$3.92	820x15	\$5.22	600x20	\$6.82	32x6(8)	\$8.42
650x16	4.32	700x15	4.12	650x20	7.42	32x6(10)	9.72
700x16	4.92	670x15	4.32	700x20	8.32	900x20	13.02
650x15	3.92	710x15	4.52	750x20	8.32	1000x20	13.52
760x15	4.85	550x17	4.22	825x20	13.82	1100x20	13.82

EXTRA SPECIAL - 30 MONTH WRITTEN GUARANTEE	700x15	\$5.72	700x20(8)	\$8.42	
600x16	\$5.02	475x19	\$5.02	750x20(10)	14.32
600x16(6)	5.72	640x15	4.92	750x20(8)	12.52
650x16	5.72	670x15	5.02	700x17	9.82
650x16(6)	6.72	710x15	5.62	750x17	10.42
700x16	6.42	760x15	5.82	750x15	10.52
750x16	6.92	800x15	6.72	825x15	11.52
525x18	4.82	820x15	6.62	600x20	8.62
550x17	4.42	670x16	6.12	650x20	10.42
650x15	5.02	760x16	6.52	32x6(8)	10.32
700x15	5.72	700x16(6)	7.72	32x6(10)	12.32

White Walls \$1.00 extra

Military treads 750-20 16.12

Thousands of tires shipped all over U.S.A. All tires shipped F.O.B. Phila. Send Check or M.O. with this ad. Dept. 2.

**STANDARD** 834 N. Broad St., Philadelphia 30, Pa.

**Learn ACCOUNTING**  
Business Administration  
Bookkeeping, secretarial and allied subjects at home in your spare time or attend nationally approved resident school. Write for FREE Success Book giving complete information about courses, plans, rates and employment opportunities.

**Hills BUSINESS UNIVERSITY AND EXTENSION SCHOOL**  
619 W. MAIN ST. OKLAHOMA CITY 2, OKLAHOMA

**GREAT PROFITS**  
MAKE YOUR OWN RUBBER MOLDS  
SEND FOR FREE FACTS

X.L. RUBBER MOLDS  
will realize you great profits quickly!  
WRITE FOR NEW FREE CATALOG

YOU can EASILY learn to cast thousands of perfect plaques, book ends, figurines, ash trays, etc. IT'S EASY, FUN, PROFITABLE!

X.L. Rubber, Pts. \$2.50; Qts. \$4.00 (postage extra). Models and enough for 3 molds \$1.50 prepaid.

Address Dept. 2  
3403 S. Madison St.  
Muncie, Ind.

**HOW TO PAINT**  
With Brush and Spray  
Do It Yourself for Less With this P.M. Book  
Do painting and finishing jobs yourself and save about two-thirds the cost. Get HOW TO PAINT now and enjoy this big saving. It covers exterior painting, interior decorating, furniture finishing, concrete painting — every type of painting with brush, spray gun, roller and other methods. Tells what finish is best; what materials to use, etc. Fully illustrated. Order by mail. Only \$2.50. Money back if not pleased.

POPULAR MECHANICS PRESS, Dept. PMS, 200 E. Ontario St., Chicago 11

**BOYS! MAKE YOUR OWN RADIO**

Learn Interesting Details  
Make your own simple, tubeless, batteryless Crystal Radio. SEND 25c for a GENUINE MELOMITE CRYSTAL with complete illustrated instructions for making your own set. Crystal sent postpaid with instructions and our own publication, "THE MAGIC CRYSTAL" which is full of news, diagrams, questions and answers of interest.

SEND 25c FOR YOUR CRYSTAL TODAY!  
ALVA ALLEN RADIO Dept. PM-4 Clinton, Mo.

**Secrets of VENTRILOQUISM Now Revealed!**

Easy to learn in 60 to 90 days with our Home Study Course. RESULTS GUARANTEED. Make Money! Be Popular! Have Fun! Big Opportunity! Radio, Television, Stage Appearances! For FREE Information regarding price and terms, WRITE. You must state your age. Dummy Catalog 25c.  
FRED MAHER SCHOOL OF VENTRILOQUISM  
Box 36, Studio D Kensington Station  
Detroit 24, Michigan

**Learn PHOTOGRAPHY at Home**  
Splendid opportunities. Prepare in spare time. Practical basic training. Long-established school. Send for free book, "Opportunities in Photography." No obligation.

AMERICAN SCHOOL OF PHOTOGRAPHY, 835 Diversey Pkwy., Dept. 1354, Chicago 14, Ill.

# Real Causes of TV Interference In This Area Revealed

A message to every TV set owner who is tired of paying \$5-\$10 for the same unnecessary service calls over and over again—and who is unfairly blaming his serviceman for something that is not his fault.

Have you ever wondered why your TV set can't be fixed—why your TV picture still gets aggravating wavy lines, streaks, distortions and zags—why high powered aerials, expensive new sets, even top flight servicemen often fail to stop this TV interference?

## THE TRUTH ABOUT YOUR TV SET

It is a known fact that your TV antenna not only picks up the picture waves you see on your screen, but also picks up electric static waves that can ruin your picture.

## THE REAL CAUSES OF TV INTERFERENCE

And the reason you or your repairman have never been able to block out this interference is because it does not come from within your TV set but from sources outside your TV set! These sources are the real cause of TV interference. These are what may cause your TV screen to flicker, flutter, streak or get hazy.

For instance, you yourself, realize that a doctor's diathermy machine up to 2½ miles from your home can ruin your TV viewing pleasure for hours on end.

But do you know that a car or truck passing your home can streak, distort your TV picture?

Do you know that nearby telephone lines or neon advertising signs, can make your screen flicker and flutter?

And do you know that any electrical appliance in your home—or your neighbor's home—can streak, distort and haze your TV picture for an entire evening?

## ANY ONE OF THESE CAN CAUSE YOUR TV INTERFERENCE

### Inside Your Home

Electric toasters	Phonographs
Vacuum cleaners	Electric razors
Sewing machines	Refrigerators
Electric broilers	Oil burners
Ringing telephone	Door bells
	Radios

### Outside Your Home

Cars	Streetcars
Busses	Trucks
Trains	Doctor's diathermy machine
Hospital machines	Subways
Electric cash register	FM Radio interference

### WHICH OF THESE TV HEADACHES DO YOU WANT TO STOP—IN JUST 45 SECONDS!



can be BLOCKED OUT by TELERON before it reaches your set.



WEAK PICTURE—TELERON CLARIFIES weak signal. Helps to hold picture bright and steady.



WAVY LINES caused by "Hams," FM broadcast stations, other TV sets, antennas, can be BLOCKED OUT by TELERON before it reaches your set.



FADED PICTURE due to weak, static ridden signals can be CLARIFIED by TELERON before it reaches your set.



BOREEFFECT caused by doctor's diathermy machines, hospital machines, can be BLOCKED OUT by TELERON before it reaches your set.



TV STATIC caused by telephone lines, neon signs, atmospheric conditions, can be BLOCKED OUT by TELERON, before it reaches your set.

### HOW TO STOP TV INTERFERENCE IN JUST 45 SECONDS!

The only way to eliminate TV interference is to BLOCK IT OUT, before it reaches your set

—in exactly the same way sunlight glare is blocked out by sunglasses before it reaches your eyes.

1. You can install an antenna-filter to help reduce interference seeping through your antenna, BUT IT CANNOT STOP streaks, wavy lines or TV static due to interference pouring in through your wall socket.

2. Or you can fix your set yourself in just 45 seconds simply by clipping onto your set a new double protection filter circuit and power line plug that not only blocks out interference coming in through your antenna, but also blocks out interference coming through your wall socket. The name of this amazing invention is the TELERON INTERFERENCE TRAP which actually blocks out these interference waves before they reach your set.

### PICTURE-CLEAR RECEPTION IN JUST 45 SECONDS

Simply clip the TELERON INTERFERENCE TRAP on to your set. It takes only 45 seconds—and fits every set made since 1947, regardless of make, model or year. See for yourself how this amazing invention gives you sharp, clear pictures; how it can add new life to your picture even in fringe areas—even in weak reception zones—even on channels you could hardly pick up before!

### ORDER TODAY AND SAVE \$2

If you order your Teleron Interference Trap today, you do not pay the \$6 you'd expect, but only \$3.98—on this amazing no-risk guarantee: If 45 seconds after you clip this amazing TELERON INTERFERENCE TRAP on your set, you are not getting perfect picture-clear reception—please return for full money back. You try it at our risk. So send today to: Hastings Products, Inc., Teleron Div., Dept. T-640, 141 Fifth Ave., New York 10, N. Y.

© 1953 Hastings Products, Inc.

--- ORDER TODAY AND SAVE \$2, MAIL COUPON NOW! ---  
**HASTINGS PRODUCTS INC., TELERON DIVISION,  
Dept. T-640, 141 Fifth Avenue, New York 10, New York**

Please send me the TV INTERFERENCE TRAP immediately, at \$3.98, plus C.O.D. postage. I understand that satisfaction is guaranteed 100%, or my money is promptly refunded.

Name..... (Please Print)

Address.....

City..... Zone..... State.....

SAVE MORE! Send \$4.00 with coupon. We pay all postage charges. Same Money-Back Guarantee.

# Last Week I Made \$259.92



**RAY BARTA**

with Science's New Midget Miracle

**PRESTO Fire Extinguisher—So reported RAY BARTA of Wisconsin. Many others "cleaning up"—so can YOU! Almost 2 Million Already Sold!**



Science's  
New Midget  
Miracle  
"PRESTO"

AMAZING new kind of fire extinguisher. Tiny "Presto" (about size of a flashlight!) does job of bulky extinguishers that cost 4 times as much, are 8 times as heavy. Ends fires fast as 2 seconds. Fits in palm of hand. Never corrodes. **Guaranteed for 20 years!** Sells for only \$3.98!

Show it to civil defense workers, owners of homes, cars, boats, farms, etc., and to stores for re-sale—make good income. H. J. Kerr reports \$20 a day. C. Kama, \$1,000 a month. Write for FREE Sales Kit. No obligation. MERLITE INDUSTRIES, Inc., Dept. 54, 201 East 16th St., New York 3, N. Y. IN CANADA: Mopa Co., Ltd., 371 Dowd St., Montreal 1, P.Q. (If you want a regular Presto to use as a demonstrator, send \$2.50. Money back if you wish.)



SEND  
NO MONEY  
•  
MORE THAN  
4000 PAGES  
•  
2750  
PICTURES

## 9 BIG COMPLETE BOOKS BUILDING, ESTIMATING, CONTRACTING

Examine this Up-to-Date Edition for 10 days. See how these nine books supply easily understood training that will help you to get a better job and make more money, or start a profitable business for yourself. Think what a BIG help it will be to have them handy for use in solving all sorts of building problems.

Learn to draw plans, estimate, do all-new construction and modern remodeling to meet fast growing demand. More than 4000 pages of practical, pay-raising information with 2750 helpful illustrations, on such subjects as blueprint reading, concrete forms, masonry, carpentry, steel square, electrical wiring, plumbing, heating, painting, and hundreds more.

In our more than 50 years we have never offered more complete building information. Send the coupon TODAY.

(A year's consulting privileges with our engineers now given with these books without extra cost.)

**AMERICAN TECHNICAL SOCIETY—Publishers Since 1898  
Dept. G419, Drexel Ave. at 58th St., Chicago 37, Ill.**

I would like to examine your 9-Volume Set of Building, Estimating, Contracting Books. I will pay the delivery charges only, but if I choose I may return them express collect. If after 10 days use I prefer to keep them, I will send you \$3 plus postage and pay the balance at the rate of only \$4 a month until \$34.80 has been paid.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

Please attach letter giving employer's name and address (if self-employed give business man reference). Men in service please give home address.

## NEW AUTOMATIC DEFROSTER

ONLY  
**\$7.95**

YOU MAKE UP TO \$4  
ON EVERY FAST SALE!



Millions of defroster attachments sold at \$12.50. Now—with new guaranteed HOLWIN at \$7.95, sales breaking all records! Men selling as many as 10 and 12 a day—right now. Your profits big—as high as \$4.00 cash on every sale. Converts any old style refrigerator into automatic defroster in 10 seconds. Just plug in. Terrific demonstrator. Women crazy for it at this price. Sell 4 out of 5 calls.

**NO CHARGE** for complete selling kit and offer of sample demonstrator. Rush name. If you've ever sold anything you'll clean up with HOLWIN. All mailed Free. Send name today for \$140-a-week opportunity and offer of demonstrator.

**DEFROSTER SALES CO.,** 415 N. LaSalle St., Dept. H-84  
Chicago 10, Ill.

**FREE**  
SEND NAME  
Rush name for free sales kit and offer of demonstrator sample. Sales skyrocketing. Send name. Get in on big money.

## BECOME AN EXPERT IN TRAFFIC

Traffic men earn \$4,000 to \$10,000 and up. Thousands of firms need experts on rates, tariffs, regulations. We train you thoroly in spare time at home for executive traffic jobs. Personal training under traffic authorities. Placement counsel and help. Write for free 48-page book "Traffic Management—the Fast Growing Profession."

**LASALLE Extension University, 417 So. Dearborn St.  
A Correspondence Institution Dept. 464-T Chicago 5, Ill.**

**Be Master of Ideas . . .**

**FREE!** 128-page book by Carl O. Johnson  
Tells How To Make Ideas WORK!

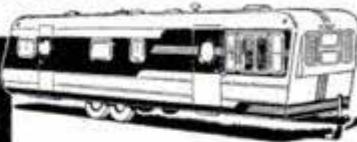
Why be "idea-poor?" Enrich your life with constructive thinking. Free 128-page book shows you how to discover new ideas and put them to work for you. Write today! No obligation. Postcard will do!

**ONTOLOGY FOUNDATION, Dept. 9, Homewood, Ill.**

**ATTENTION:** LEATHERCRAFT WORKERS — RECREATIONAL DEPARTMENTS

Send for new catalog and price-list for leather and craft supplies.  
**FINE CRAFTERS**  
227-229 NORTH MAIN STREET PROVIDENCE, R. I.  
Division of J & R Feinstein Inc.

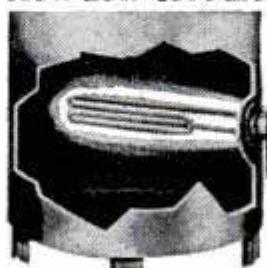
**Get the FACTS!**



Write for complete  
information. Dept. 3204  
**SCHULT CORP., ELKHART, IND.**

**SCHULT**  
TRAILERS

## New Low Cost Electric Water Heater Gives You HOT WATER AUTOMATICALLY



From Your Present Tank!

- No dirt, grime, soot, flame!
- SAFE! Every part UL approved!
- Install in 10 Minutes, or less!
- No new tanks or plumbing required!
- Works automatically—saves on fuel bills!

Complete—Ready to \$19.95  
Plug In — Only

New, UL approved LECTROMATIC changes gas, coal or oil-burning water heater into modern ALL-ELECTRIC unit! Turns on automatically when water is heated. To install, simply shut off water. Remove plug from water tank. Screw LECTROMATIC into opening (as shown), then PLUG IN! Plenty of hot water all day long. Uses only  $\frac{1}{4}$ -1 $\frac{1}{2}$  electricity per gal. of hot water. Temp. adjustable from 100 to 180 degrees. Save postage. Send check or money order for \$19.95 now. Money back in ten days if not delighted. Full one year guarantee ORDER NOW!

**COLLOID EQUIPMENT CO., INC.**

Dept. PM-4, 50 CHURCH STREET  
NEW YORK 7, N. Y.

GET  
INTO

# AUTO-DIESEL & ALLIED MECHANICS

Master  
All Phases

**JOBs LIKE THESE ARE  
AVAILABLE TO TRAINED  
MECHANICS. CHOOSE  
THE FIELD YOU LIKE BEST**

## **GET COMPLETE TRAINING FOR:**

Automotive Motor Tune-Up • General Garage Mechanic • Agricultural Implements Mechanic • Diesel Engine Rebuilding • Diesel Fuel Injection • Auto Engine Rebuilding • Auto Electrical Service • Parts Dealers • Bus & Truck Lines • Industrial Maintenance • Contracting and Excavating • Business of Your Own • AND MANY OTHERS!

## **SHOP-METHOD HOME TRAINING BY AN ESTABLISHED RESIDENT SCHOOL TRAINS YOU FOR ALL OPPORTUNITIES IN AUTO & DIESEL INDUSTRIES!**

Opportunity is everywhere for the trained Auto-Diesel Mechanic. Highways throng with cars, buses, trucks, tractors. Garages and service stations are busy. Farm machinery is "going Diesel." Factories, ships, farms, railroads, general industry, are dependent on engine power. Here's a dynamic, fast-growing field that needs trained men who know all phases: installation, operation, maintenance and repair. Now—National Schools offers you a practical, all embracing Auto-Diesel Mechanic's Course, including all these advantages:

### **COMPLETE SHOP-METHOD HOME TRAINING**

COVERS

DIESELS—High Speed and Heavy Duty  
SEMI-DIESELS—Gasoline and Special Fuel Engines  
**AND ALLIED MECHANICS!**

Basic Lesson Texts	Engine Service Manuals
Diesel Installations	Engine Repair
Operation-Maintenance	Drive Systems
Diesel Chart Manual	Diesel Electric Power
Spare Time Lessons	Thermodynamics

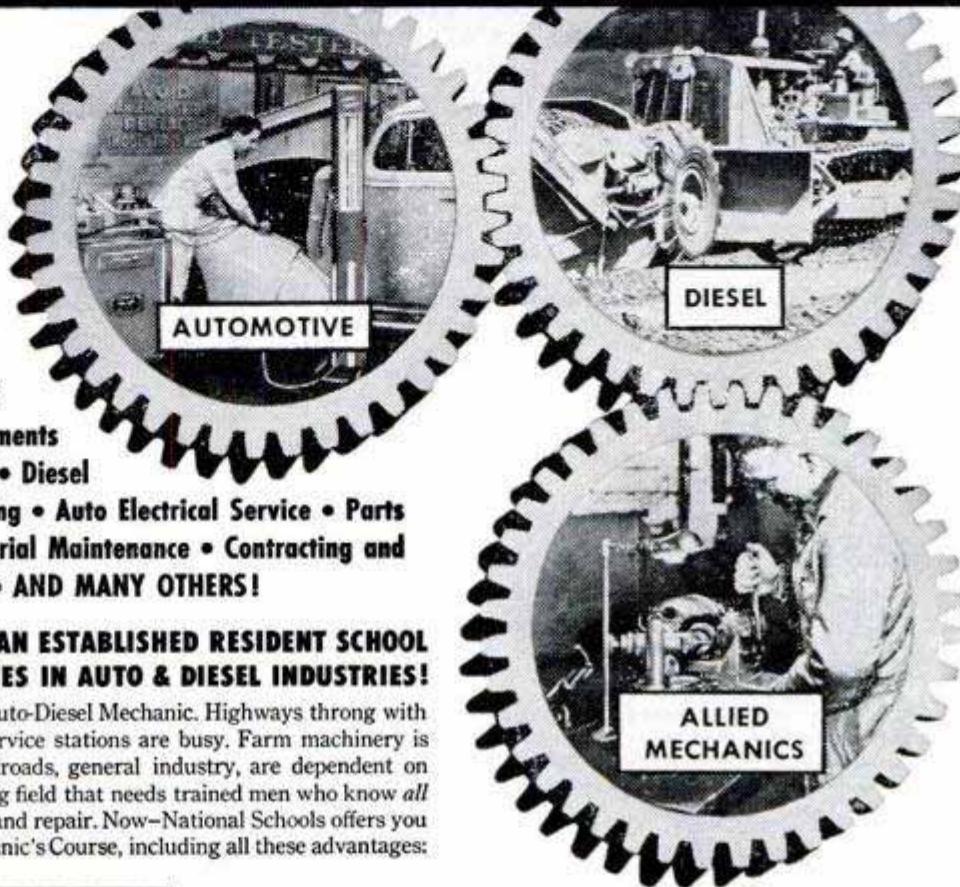
### **AND YOU CAN EARN WHILE YOU LEARN!**

With our practical Master Shop-Method Home Training, you study at home in your spare time. You get Spare Time Work Lessons showing you how to earn while you learn, for extra money and experience. You learn by DOING.

**DRAFT AGE?** Services offer better ratings, more pay to men with training. Start now—if called while training, we'll make satisfactory adjustment for you.



**FREE BOOK and SAMPLE  
LESSON show how we train you!  
SEND FOR THEM TODAY!**



## **WE GIVE YOU TOOLS OF YOUR TRADE**

TO MAKE YOUR TRAINING COMPLETE, WE GIVE YOU PROFESSIONAL QUALITY TOOLS AND EQUIPMENT, INCLUDING ALL-METAL TOOL BOX! THEY ARE PART OF YOUR INSTRUCTION, YOURS TO KEEP! DON'T MISS THIS OPPORTUNITY OF A LIFETIME!

**BOTH RESIDENT AND HOME STUDY COURSES OFFERED.**



APPROVED FOR  
G.I. TRAINING

## **NATIONAL SCHOOLS**

LOS ANGELES 37, CALIFORNIA • ESTABLISHED 1905  
In Canada: 192 E. Hastings St., Vancouver, B.C.



## **FIND OUT NOW...MAIL COUPON TODAY**

**NATIONAL SCHOOLS, Dept. DB-43**

4000 South Figueroa Street  
Los Angeles 37, California

Mail in envelope  
or paste on  
postal card

Mail me FREE the book "My Future in Automotive-Diesel & Allied Mechanics" and the Sample Lesson. I understand no salesman will call on me.

NAME \_\_\_\_\_ AGE \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

VETS! Check here if you are a veteran  
 Check here if you prefer resident school training

# INVENTORS

Your first step—if you consider your invention to be something of importance—is to have a search made of pertinent, prior U. S. patents. If our search report indicates probable patentability of your invention, you may apply for a patent which gives you the right to exclude others from making, using or selling your invention as claimed for a term of 17 years.

This firm is registered to practice before the U. S. Patent Office and is available to assist in the preparation of the necessary drawings, specification and claims.

Ask for a copy of our instructive booklet "Patent Protection for Inventors" and our convenient "Evidence of Invention" form. No obligation.

**VICTOR J.  
EVANS & Co. Merlin M. Evans**  
REGISTERED PATENT ATTORNEY  
830-D MERLIN BUILDING, WASHINGTON 6, D. C.

## CASH-IN-ON-YOUR-IDEAS



Reputable manufacturers, nation-wide look to us for your gadgets, patented or not. Get step by step helpful instructions before you go to expense of patents. "The Inventor's Guide" tells how to develop, protect, make money from your inventions. Send only \$1.00 for your book, includes list of needed products, "Record of Invention" form. Act today!

**INVENTORS CREATIVE SERVICE**  
Dept. PM, 354 South Spring St., L.A. 13, Calif.

## FREE AVIATION BOOK . . .

You can cash in on America's fast-expanding industry—AVIATION. SPARTAN has trained thousands for well-paid jobs. You can qualify in a remarkably short time for employment with an airline, manufacturer of planes or aviation equipment. SPARTAN has calls for more graduates than are available. If you have ability, ambition and the necessary training, there is no limit to the success you can achieve.

Investigate the many opportunities and training required. Write for FREE BOOK

**SPARTAN**  
SCHOOL OF AERONAUTICS  
TULSA, OKLAHOMA

### MAIL COUPON TODAY

I Spartan School of Aeronautics  
Tulsa, Oklahoma Dept. PM-43  
Please send me complete information on Course \_\_\_\_\_

Name \_\_\_\_\_ Age \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_



# INVENTORS

IF YOU WISH TO PROTECT YOUR INVENTION, You should take steps to protect it by a U. S. Patent. Write me for "INVENTION RECORD" form

**CARL MILLER**  
REGISTERED PATENT ATTORNEY  
WOOLWORTH BLDG., 35th FLOOR, 43A  
NEW YORK CITY

**PATENTS**  
**C. A. SNOW & CO.**  
REGISTERED PATENT ATTORNEYS  
WRITE FOR INFORMATION TO  
428 SNOW BUILDING, WASHINGTON 1, D. C.

# INVENTORS

Send for  
**PATENT INFORMATION**  
Book and  
**INVENTOR'S RECORD**  
without obligation  
**GUSTAVE MILLER**  
43-PM WARNER BUILDING  
WASHINGTON 4, D.C.

### REGISTERED PATENT ATTORNEY

Patent Attorney & Advisor  
U. S. NAVY DEPT. 1930-1947  
ASSOCIATE EXAMINER  
U. S. PAT. OFF. 1922-1929  
PATENT LAWYER

**DATENTS**  
**E. E. VROOMAN, Registered Patent Atty.**  
505 McKim Building, Washington 5, D. C.

"Proof of Invention"  
Folder mailed without obligation.

# INVENTORS

Whether an invention is patentable can be substantially determined by a search of the U. S. Patent records. Without obligation, write for information explaining the steps you should take to secure a patent.

**JOHN N. RANDOLPH**  
Registered Patent Attorney  
201 Columbian Building, Washington 1, D. C.

**INVENTIONS**  
WANTED AT ONCE

If you want to market, or sell, your invention for cash or royalties, Write for our Free Booklet. Send no drawings. We also welcome hearing from firms, or private capital, wishing to review inventions in any field. We will be glad to send notice of our clients' inventions.

**GLOBAL MARKETING SERVICE**  
1404 Mitchell Street Dept. PD Oakland 1, Calif.

### USE EASTER SEALS

# INVENTORS

I shall be pleased to furnish you, upon request, with full information relative to patent procedure—without any obligation on your part.

**PATRICK D. BEAVERS**  
Registered Patent Attorney  
934 Columbian Building Washington 1, D. C.

# Now YOU can PICK your JOB with a BIG PAY Future in INDUSTRY

- TOOL  
ENGINEER**
- 
- TOOL & DIE  
DESIGNER**
- 
- MACHINE  
DESIGNER**
- 
- INDUSTRIAL  
ENGINEER**
- 
- INDUSTRIAL  
DRAFTSMAN**
- 
- MASTER  
MACHINIST**
- 
- TOOL & DIE  
MAKER**

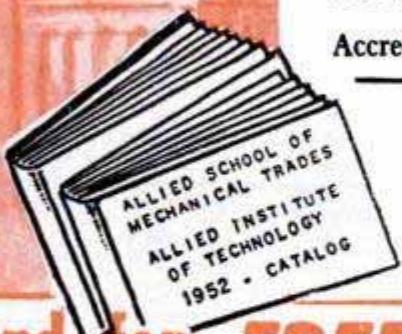
Yes, you can pick your job now! Industry is expanding so rapidly there are more good paying jobs than there are trained men to fill them. Shortages of Draftsmen, Designers, Tool Engineers, Machinists, Tool & Die Makers are so widespread that you can pick one of these highly paid key jobs—and then look forward to a lifetime of Achievement and Security!

Due to the enormous present-day expansion in the field of Tool Engineering, Industry has been clamoring for Allied-trained men to fill important jobs in the industrial fields.

Allied courses are integrated so that you can either study at your home or at the Allied Institute. You may enroll in our short term courses — or you may continue with training that will lead you progressively to a degree of Bachelor of Tool Engineering in twenty-six months.

ALLIED is approved by Industry, the American Society of Tool Engineers, Department of Education and Registration, the Department of Public Instruction — State of Illinois and the Veterans Administration.

Accredited by the Central Schools Association.



ALLIED SCHOOL OF  
MECHANICAL TRADES  
ALLIED INSTITUTE  
OF TECHNOLOGY  
1952 - CATALOG

Free employment service and housing assistance all through your training period and after your graduation. Our industrial contacts cover the U.S.A.

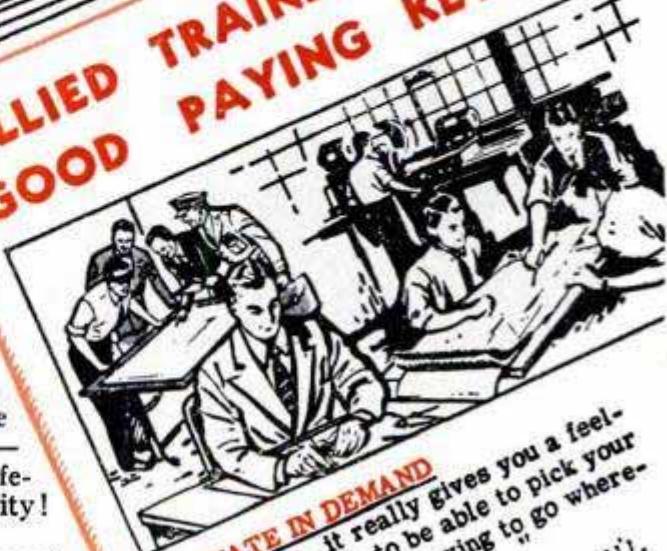
send for **FREE BOOKS**

**ALLIED SCHOOL**  
of Mechanical Trades

1338-42 S. Michigan Ave.  
Chicago 5, Illinois



**ALLIED TRAINED MEN GET  
GOOD PAYING KEY JOBS**



**GRADUATE IN DEMAND**

"Believe me, it really gives you a feeling of satisfaction to be able to pick your employer instead of having to go wherever you can to get a job...." Go where-  
Dave Nickels, Dundee, Ill.

**PRACTICAL TRAINING**

"I am employed as an aircraft draftsman and junior engineer. Thanks to Allied and the excellent instruction I received there..."  
R. Clugston, Joliet, Ill.

**EMPLOYER IMPRESSED**

"My employer was impressed with my practical knowledge and drafting skill. Both of these I learned at Allied having never worked in the die design field..."  
Frank E. Myers,  
Maywood, Ill.

**ALLIED SCHOOL of MECHANICAL TRADES**

**ALLIED INSTITUTE of TECHNOLOGY**

1338-42 S. MICHIGAN AVE., Dept. PM-4  
CHICAGO 5, ILL.

GENTLEMEN.

I WANT TO GET INTO IMPORTANT INDUSTRIAL TRADES AND PROFESSIONS.

SEND ME WITHOUT OBLIGATION YOUR FREE BOOKS EXPLAINING ALLIED'S COURSE OF INSTRUCTION.

I AM INTERESTED IN  RESIDENT TRAINING.

I AM INTERESTED IN  HOME STUDY TRAINING.

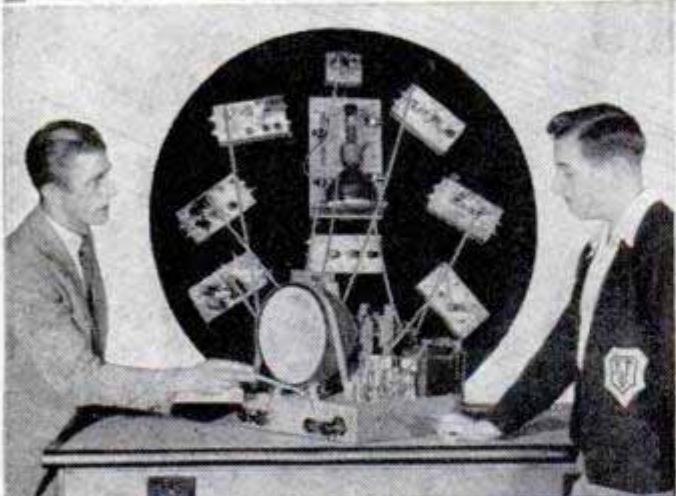
I AM ELIGIBLE  I AM NOT ELIGIBLE  FOR TRAINING UNDER G. I. BILL.

Name \_\_\_\_\_ Age \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

# BECOME AN ELECTRICAL ENGINEER



## Bachelor of Science Degree in 36 months

Now, prepare for a respected, well-paying and highly interesting job as an Electrical Engineer or Engineering Technician. Major in Electronics or Power, two of America's most rapidly expanding industries. Write for full details.

### Choose from these Courses in Electrical Technology

#### SERVICE PREPARATORY COURSES

Electrical Service	6 months
Radio and Television Service	12 months

#### TECHNICIAN COURSES

Electro Technician	12 months
Electronics Technician	12 months
Radio Technician	12 months
Radio and Television Technician	18 months

#### ENGINEERING COURSES

Electrical Engineering-Bachelor of Science Degree	
Electronics major	36 months
Power major	36 months

#### MECHANICAL TECHNOLOGY COURSES

Also available, service and technician courses 6 to 18 months in Heating, Refrigeration, Welding, Air Conditioning and Mechanics — Mechanical Engineering with a major in Metal Fabrication or Plant Engineering.

Also, 3-month refresher and general preparatory classes.

**Terms Open April, July, October, January**  
Famous for its Concentric Curriculum. Faculty of specialists. Over 50,000 former students. Annual enrollment from 48 states and 23 overseas countries. Non-profit. 50th year. Military, Practical or Academic training evaluated for advanced credit. Courses approved for Veterans.

## MILWAUKEE SCHOOL OF ENGINEERING

**MILWAUKEE SCHOOL OF ENGINEERING**  
Dept. PM-453, 1025 N. Milwaukee  
Milwaukee 1, Wisconsin

Send Catalog describing Electrical Engineering Course.

I am also interested in: \_\_\_\_\_ name of course

Name: \_\_\_\_\_ Age: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ Zone: \_\_\_\_\_ State: \_\_\_\_\_

If veteran, indicate date of discharge: \_\_\_\_\_

**SAVE \$65 ON THIS LUXURIOUS \$100 CONTOUR CHAIR \$34.95**

Genuine FOAM RUBBER

For Everything  
needed complete to  
**PUT IT TOGETHER  
IN ONE EVENING!**

**Make  
Money  
Selling  
and  
assembling contour  
chairs for friends**

upholstery. Would cost \$100 or more in any store. Shipped all ready to put together in less than one evening. No cutting, no drilling, no skill needed. A woman can do it. Order now! Everything for only \$34.95, f.o.b. Balto. State color wanted: forest green, royal blue, ruby red, walnut brown.

**SAVE \$60 ON THIS MODERN \$24.95  
REG. \$85 CHAIR**

for every-  
thing needed  
complete to  
Put Together  
in 2 hours

Exact copy of regular \$85 decorator chair. Foam rubber with hardwood frame and bottle upholstery. Extra roomy. Shipped all ready to put together in 2 hours! No skill needed. Choice: forest green, lipstick red. State color wanted.

Order now. Enclose \$5 deposit, pay balance on arrival. Money back if not satisfied.

**BESTCRAFT CO., Dept. 21, Balto. 14, Md.**



## MAGIC TRICKS

### IT'S FUN TO DO MAGIC

Be popular! Amaze—mystify—entertain! For 30 years Douglas has satisfied customers all over the world. Now, you can enjoy this fascinating hobby. Only 10¢ brings our Catalog 500 Tricks, containing brand new tricks for pocket, parlor, stage. Join in the fun — send 10¢ today!

Douglas Magicland, Dept. A, Dallas, Texas

## ENJOY SECURITY—BE A SUCCESS!

SEE PAGE 23

## MAKE MORE MONEY Win New Friends, Step Up Personality All Through Better English!



Speak and write with new power and clarity. It's fun to learn better English at home this new, self-correcting way. Takes only 15 minutes a day—benefits start with first lesson. Low-cost course. New 32-page booklet, YOUR ENGLISH AND YOUR CAREER, mailed FREE on request. Send for it today! No salesman will call.

CAREER INSTITUTE, 41 E. Pearson, Dept. 114, Chicago 11

## You can earn a HIGH SCHOOL DIPLOMA

IN YOUR  
SPARE TIME,  
IN YOUR  
OWN HOME!

No classes—all materials furnished. Certified teachers. Diploma awarded. Write today for complete information.

**SOUTHERN STATES ACADEMY**  
BOX 144-M, STA. E ATLANTA, GA.



## INSURED TIRE SERVICE POPULAR BRANDS

**FREE**

INSURANCE POLICY given with each used tire sold. We guarantee the amount of service you pay for.

Tube Given Free with Each Used Passenger Tire Upon Request

**SPECIAL!  
Deduct  
10% on  
orders for  
Two or  
More used  
tires**

**YOU CAN'T  
LOSE!!**

Super Quality — Rugged Performance — 15 Months Insured Service	
600x16	\$4.55
650x16	4.95
650x16	5.45
670x15	5.25
670x15	5.35
700x15	5.45
700x15	5.95
700x15	6.25
700x15	7.00
700x15	7.50
700x15	8.25
700x15	10.45
700x15	10.95
700x15	11.75
700x15	12.50
700x15	13.25
700x15	14.50
700x15	15.95
700x15	19.95
700x15	20.45
700x15	26.75
700x15	27.50
700x15	29.00
700x15	32.00
700x15	32.50
700x15	33.00
700x15	34.50
700x15	35.00
700x15	35.50
700x15	36.00
700x15	36.50
700x15	37.00
700x15	37.50
700x15	38.00
700x15	38.50
700x15	39.00
700x15	39.50
700x15	40.00
700x15	40.50
700x15	41.00
700x15	41.50
700x15	42.00
700x15	42.50
700x15	43.00
700x15	43.50
700x15	44.00
700x15	44.50
700x15	45.00
700x15	45.50
700x15	46.00
700x15	46.50
700x15	47.00
700x15	47.50
700x15	48.00
700x15	48.50
700x15	49.00
700x15	49.50
700x15	50.00
700x15	50.50
700x15	51.00
700x15	51.50
700x15	52.00
700x15	52.50
700x15	53.00
700x15	53.50
700x15	54.00
700x15	54.50
700x15	55.00
700x15	55.50
700x15	56.00
700x15	56.50
700x15	57.00
700x15	57.50
700x15	58.00
700x15	58.50
700x15	59.00
700x15	59.50
700x15	60.00
700x15	60.50
700x15	61.00
700x15	61.50
700x15	62.00
700x15	62.50
700x15	63.00
700x15	63.50
700x15	64.00
700x15	64.50
700x15	65.00
700x15	65.50
700x15	66.00
700x15	66.50
700x15	67.00
700x15	67.50
700x15	68.00
700x15	68.50
700x15	69.00
700x15	69.50
700x15	70.00
700x15	70.50
700x15	71.00
700x15	71.50
700x15	72.00
700x15	72.50
700x15	73.00
700x15	73.50
700x15	74.00
700x15	74.50
700x15	75.00
700x15	75.50
700x15	76.00
700x15	76.50
700x15	77.00
700x15	77.50
700x15	78.00
700x15	78.50
700x15	79.00
700x15	79.50
700x15	80.00
700x15	80.50
700x15	81.00
700x15	81.50
700x15	82.00
700x15	82.50
700x15	83.00
700x15	83.50
700x15	84.00
700x15	84.50
700x15	85.00
700x15	85.50
700x15	86.00
700x15	86.50
700x15	87.00
700x15	87.50
700x15	88.00
700x15	88.50
700x15	89.00
700x15	89.50
700x15	90.00
700x15	90.50
700x15	91.00
700x15	91.50
700x15	92.00
700x15	92.50
700x15	93.00
700x15	93.50
700x15	94.00
700x15	94.50
700x15	95.00
700x15	95.50
700x15	96.00
700x15	96.50
700x15	97.00
700x15	97.50
700x15	98.00
700x15	98.50
700x15	99.00
700x15	99.50
700x15	100.00
700x15	100.50
700x15	101.00
700x15	101.50
700x15	102.00
700x15	102.50
700x15	103.00
700x15	103.50
700x15	104.00
700x15	104.50
700x15	105.00
700x15	105.50
700x15	106.00
700x15	106.50
700x15	107.00
700x15	107.50
700x15	108.00
700x15	108.50
700x15	109.00
700x15	109.50
700x15	110.00
700x15	110.50
700x15	111.00
700x15	111.50
700x15	112.00
700x15	112.50
700x15	113.00
700x15	113.50
700x15	114.00
700x15	114.50
700x15	115.00
700x15	115.50
700x15	116.00
700x15	116.50
700x15	117.00
700x15	117.50
700x15	118.00
700x15	118.50
700x15	119.00
700x15	119.50
700x15	120.00
700x15	120.50
700x15	121.00
700x15	121.50
700x15	122.00
700x15	122.50
700x15	123.00
700x15	123.50
700x15	124.00
700x15	124.50
700x15	125.00
700x15	125.50
700x15	126.00
700x15	126.50
700x15	127.00
700x15	127.50
700x15	128.00
700x15	128.50
700x15	129.00
700x15	129.50
700x15	130.00
700x15	130.50
700x15	131.00
700x15	131.50
700x15	132.00
700x15	132.50
700x15	133.00
700x15	133.50
700x15	134.00
700x15	134.50
700x15	135.00
700x15	135.50
700x15	136.00
700x15	136.50
700x15	137.00
700x15	137.50
700x15	138.00
700x15	138.50
700x15	139.00
700x15	139.50
700x15	140.00
700x15	140.50
700x15	141.00
700x15	141.50
700x15	142.00
700x15	142.50
700x15	143.00
700x15	143.50
700x15	144.00
700x15	144.50
700x15	145.00
700x15	145.50
700x15	146.00
700x15	146.50
700x15	147.00
700x15	147.50
700x15	148.00
700x15	148.50
700x15	149.00
700x15	149.50
700x15	150.00
700x15	150.50
700x15	151.00
700x15	151.50
700x15	152.00
700x15	152.50
700x15	153.00
700x15	153.50
700x15	154.00
700x15	154.50
700x15	155.00
700x15	155.50
700x15	156.00
700x15	156.50
700x15	157.00
700x15	157.50
700x15	158.00
700x15	158.50
700x15	159.00
700x15	159.50
700x15	160.00
700x15	160.50
700x15	161.00
700x15	161

# NEW 1953 MANUAL SHOWS YOU HOW TO SQUEEZE 45 MILES ► FROM ONE GALLON OF GAS

**ZOOM AHEAD**



- 0 to 60 in 12 Seconds
- Faster Get-Away
- Increase top speed 20 Miles

## Extra Pep, Speed, Power, Economy yours with ANY make car!

### Raceway Secrets Revealed!

Here at last—after long careful preparation—the latest 1953 automotive manual that shows you how to save \$\$\$ on gas, tires, repairs, accessories. This amazing book, hot off the presses is the **NEWEST** now available in America! It gives you the down-to-earth facts on how to get 30, 40, 50 miles on a single gallon of gas. No longer need you get rattled to see "tin can jalopies" beat you at the light everytime... leave you in the dust on the highway! Now you can give your car greater pep, add up to 30 miles per hour to its top speed, surge ahead from 0 to 60 miles in 12 seconds flat. You can save hundreds of dollars annually, burn water with gas, extend car life by simple easy tricks, quickly recondition cylinder walls without removing the motor! It seems incredible but it's true! Many of these methods have been tested by huge industrial and oil firms, special laboratories, government bureaus. Some are used by the Army, Navy and Air Force. Some have come from the Indianapolis Speedway champions. Now this information is yours in the new 1953 book: "High Speed & Extra Power"—hot off the presses.

**SPEEDWAY BOOKS — 127 W. 33rd St., Dept. 6-SD — New York 1, N. Y.**



### Easy Pictures Show you How!

No need to be a mechanic! Easy directions & clear pictures show you how to get more speed, extra power, greater economy with only a screwdriver. Tells of cheap gadgets that work miracles with any motor, a 1953 model or a junkyard derelict! Shows you how to **SAVE** up to \$500.00 a year, increase resale value of your car, reduce repair costs.

#### Hundreds of Valuable Money Saving Secrets!

Here is some of the amazing information given you: 20 ways to save gas or oil; alcohol-air injection systems; mixing air & fuel; car super-charging ideas; speed and power tuning; how to increase top power & speed, get instant starts in winter, better pick-up on hills; 10,000 extra tire miles, make minor repairs yourself and save plenty, new plastic methods for removing body dents; new paints that go right over rust. **PLUS: HUNDREDS** of other ideas on adjustment & maintenance of your car inside and out! Thousands of wide-awake Americans have this money saving knowledge. Have you? Get your "Higher Speed and Extra Power Manual" now! Stop wasting gas and oil. Stop paying for sucker repairs! Get more power, more speed! Get faster get-a-way! Leave 'em in the dust with a higher compression car!

**U. S. Gov't. Scientist  
reveals how to**



### BURN WATER & SAVE GAS!

Here's only **ONE** of over a thousand secrets that show you how to get marvelous new power and save gas too! Make your own "Super Charger" with a cheap mason jar and 15¢ rubber hose! So simple—so easy—yet it can actually **save** you up to 35% more gas! You'll be dazzled with the terrific new power you get with this moderate water injector!

### DRIVE 8000 MILES WITHOUT OIL CHANGE!

Do you need help to stopping power waste? A quarter's worth of graphite will work wonders for you! This method used by thousands. Try it... you'll be amazed! There's over 1000 more ideas for you—easy to understand with pictures that show you how! Busy executives or ladies can let their service station attendant make many changes shown in this book. Most fellows, however, prefer to have the fun and satisfaction of doing it themselves. After all it's so simple with the easy instructions & step-by-step pictures! Remember, you must be satisfied or this manual costs you nothing!

**FREE!**  
even if you return manual!

1. **Pocket "TROUBLE SHOOTER"** helps you find cause of motor defects, with repair advice.

2. **"SAVE ON ACCESSORIES"** — saves plenty on tires, accessories, gadgets. Not a catalog—absolutely impartial.

3. **"ECONOMY DRIVING TECHNIQUE"** — tells about famous Indianapolis driving techniques that gave 150 miles per gallon!

4. **"33 WAYS TO INCREASE TRADE-IN VALUE."** May be worth hundreds to you! Stock limited! Rush coupon **TODAY** for 7 day trial!



**Read it at our risk!**

This great new book is yours to try 7 days without obligation! Only **ONE** of its ideas may begin to save you money the day received, for instance: a screwdriver tune-up trick that gives you added power, pep and economy—in a few minutes! But be sure you get the genuine **ORIGINAL** and very latest! Remember: We don't sell automotive supplies! This is not a catalog! No "coupons"! No deception! This book tells **THE TRUTH**. Send no money. Pay only 1.98 plus post. on arrival. Read 7 days at our risk. Let **RESULTS** talk for themselves. You must be delightfully surprised or your money back! Act **NOW!** Mail coupon today!

198

**MAIL COUPON**

#### SPEEDWAY BOOKS

127 West 33rd Street, Dept. 6-SD, New York 1, N. Y.

RUSH Hi-Speed & Extra Power manual on 7 day trial money back guarantee. I will pay 1.98 plus postage on arrival. Also send **FREE** the following: "Trouble Shooter", "Save on Accessories", "Economy Driving Technique" and "33 Ways to Increase Trade-In Value". Mine to keep even if I return manual for refund.

Name \_\_\_\_\_

Address \_\_\_\_\_

Town \_\_\_\_\_ State \_\_\_\_\_

**SAVE MORE—GET MORE** by sending \$2 check, m.o. or cash, in which case we pay postage and include **MOTORISTS' COMPASS** at no extra cost. Same money-back guarantee!

# SHORTHAND IN 6 WEEKS AT HOME

WRITE 120  
WORDS PER  
MINUTE

## Age No Obstacle

Famous Speedwriting Shorthand. No symbols, no machines. Uses ABC's. Easiest to learn and use. Qualify at home in spare time. Fast preparation for a better position and a sound, substantial future. Nationally used in leading offices and Civil Service; also by executives, students, etc. 120 words per minute. 50% FASTER than Civil Service requirements. Over 150,000 taught by mail. Also typing.

The very low cost will surprise you

**30th YEAR**

Schools in over 360 cities in U. S., Canada, Cuba and Hawaii.

Write for FREE Booklet to:

**Speedwriting**  
Dept. 1504-3, 55 West 42 St., N. Y. 36 (R)

# ELECTRICAL WIRING JOBS

2 GIANT now made Easier!  
Volumes  
3168  
Pictures!

Official  
CODE RULES  
made clear by  
PICTURES!

Newest idea in ages! Official National Electrical Code rules made crystal-clear by PICTURES! Books contain thousands of pictures explaining every Code rule, parts of rules, exceptions, etc. Based on latest Code . . . shows how to do a right job every time. Saves you time, money, inspection headaches. Pictures are big and clear . . . on 8½x11 page size . . . over 1600 pages. Covers things like wiring design and protection, wiring methods, hazardous locations, etc.

## ELECTRICAL CODE DIAGRAMS

A few minutes study a day makes you a real Code expert...helps you on the job every day.

- Speeds your electrical planning and installation
- Saves costly errors, expensive violations
- Numbered exactly like Code for quick reference



FREE TRIAL!  
EASY TERMS!

McGRAW-HILL BOOK CO., Dept. PM-4  
327 West 41st St., New York 36, N. Y.

(This offer applies  
to U. S. only)

Send for 10 days' FREE trial Segall's ELECTRICAL CODE DIAGRAMS, 2 vols. If not satisfied, I will return books. Otherwise I will send \$5.00, plus delivery charges, then \$5.00 a month until \$25.00 is paid. (We pay delivery if you remit with coupon; same return privilege.)

Name \_\_\_\_\_

Address \_\_\_\_\_

City & State \_\_\_\_\_

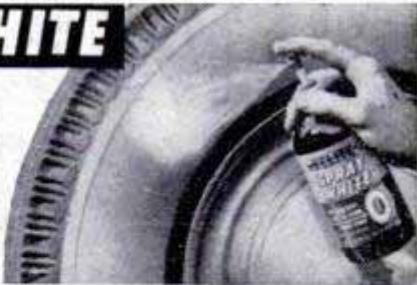
Employed by \_\_\_\_\_

(Offer applies to U. S. A. only.)

PM-4

# SPRAY WHITE

## NEW! EASY WAY TO CLEAN WHITE TIRES



This amazing new compound (not a paint) gets dirtiest whitewall tires snowy-white-as-new! Just wet the tire, spray with SPRAY WHITE, swish suds around...and rinse. No scrubbing or abrasives needed. Harmless to hands, tires. Bottle cleans 50 tires: \$1.00, sprayer included, post-paid. MONEY BACK GUARANTEE.

**DEALER & JOBBER INQUIRIES INVITED**  
**KELITE PRODUCTS, INC., DEPT. P-2**  
Box 2917, Los Angeles 54, California

## TWO VALUABLE COLLECTIONS PLUS STAMP DICTIONARY



BIG triangle collection consisting of San Marino Flower Triangle Set; Hungary Bird Triangle Set; Roosevelt Triangle; Monaco Pope Pius Triangle Set; Nicaragua Triangle Set. PLUS historic San Marino Collection including centennial of first U. S. Stamp, Columbus, Garibaldi, Flowers, Triangle, Airmails, etc. . . . PLUS 40 PAGE POCKET STAMP DICTIONARY AND GUIDE . . . which solves your where-from problems at a glance. Both collections PLUS the dictionary are yours for ONLY 25c . . . to introduce our bargain approvals!

**STAMPEX CO.**

116KM Nassau St.  
New York City

## SKILL SWORDS

\$4.95 Ppd

### SWIFT - Exciting

Unique!

Set includes four special wood swords two per player, a composition ring, and SKILL SWORDS playing and scoring instructions. Play it anywhere! **MONEY BACK GUARANTEE** Sold only direct. Send \$4.95 today to TRADEWINDS 1121 Kenwood St. Burbank, California

## BIG MONEY and your OWN BUSINESS in AUTOMATIC MERCHANDISING

Get started in the fabulous young business—automatic merchandising. Learn how small operators share in BILLION DOLLARS spent yearly in pennies, nickels, dimes for vended products. STUDY AT HOME so you can operate your own machines vending coffee, candy, sandwiches, other products. Write for amazing Reader's Digest reprint, "Insert Coin Here," the story of vending, SENT ABSOLUTELY FREE. Also how you can master secrets of selling merchandise automatically. RUSH NAME AND ADDRESS ON POSTCARD TODAY.

SUPERMATIC REPORTS, 1209 Calhoun, Dept. 24, Houston 3, Texas

## LEARN



# DRAFTING

IT'S EASY IN SPARE TIME AT HOME!

Now YOU can get in on the unlimited opportunities and big pay open to skilled draftsmen. You take no risk! Cleveland Engineering Institute will train you quickly to fill industries' growing, desperate need. You will be privately tutored by a licensed professional engineer, C.E.I. guarantees to train you until you qualify. Thousands have succeeded with a C.E.I. diploma. So can YOU! Two courses to choose from: Mechanical or Aeronautical. Get full information at once! No obligation. No salesman will call. Just write your name and address on a 2c postcard and mail it today!

**FREE SUCCESS  
BOOK**

CLEVELAND ENGINEERING INSTITUTE  
Extension Division PM-14C  
6300 Euclid Ave., Cleveland 3, Ohio

# EXPLORE THE LIVING MICRO-JUNGLE

You can see and study any of these living, fascinating micro-animals with any microscope shown on this page! These high-quality popular-priced instruments are your passport to a lifetime of thrilling explorations in the weird micro-jungle with the most exciting tool ever developed by science! A sensational hobby that leads to many wonderful careers.



## NEW! 100, 200, 300 POWER TRIPLE TURRET

**\$9.95**  
postpaid

**Model 300B**—Complete with 100, 200 and 300 power lenses. A lifetime possession, an exclusive Precision Optical Company microscope at a price never before approached! Shipped in fitted hardwood cabinet. \$9.95 postpaid!

## NEW! 20 POWER...MAGIC! FOCUS TELESCOPE!



### 908 SQ. MM JUMBO OBJECTIVE LENS!

**Focus like a Binocular!**

**\$9.95**  
POSTPAID

Features never equalled at four times this unbelievable low price! New calibrated spiral eyepiece turns in an instant to brilliant pinpoint focus. New fully coated jumbo objective lens has 71% more light gathering area! This is a precision all-metal telescope, completely rust and salt-spray resistant. A wonderfully improved spotting scope, a giant powerful telescopic eye for boat owners, hunters, sports observers. Shipped in a beautiful fitted hardwood cabinet. The greatest telescope buy ever offered!

## NEW! 61 pc. KIT INCLUDING MICROSCOPE!



You must see to believe this tremendous value! Every piece of high quality equipment needed to make all kinds of slides, mount specimens, complete dissecting equipment, burner, crucible, beakers, flasks, test tubes, blank slides, slide covers, a beautiful fitted hardwood cabinet. This is a complete portable micro-laboratory! Model 300D—complete 100, 200, 300 power microscope included. The most valuable gift for a young man or woman ever developed!

**\$19.95**  
Ppd.



Send for this  
NEW book!  
*"Exploring*

### In The Micro-Age" \$1

55 illustrations: dozens of micro-animals and plants shown and identified, how to make slides, where to look for specimens.

A complete new microscope handbook. \$1 postpaid.



## 70-100-200-300 Power QUADRUPLE TURRET!

**\$16.95**  
POSTPAID

**Model 300PLC**—complete with 70, 100, 200 and 300 power lenses. IN THE LATEST "L" DESIGN. Tube is stationary. Instrument is focused by raising and lowering stage. An amazing new Precision Optical Co. value. Shipped in fitted hardwood case. \$16.95 postpaid.



## 40 TO 600 POWER LABORATORY MICROSCOPE

This is the instrument which schools and colleges all over the country tried with amazement, tested and purchased! Time after time it has replaced microscopes costing over \$100! The model 635 Triple Turret microscope is complete with 10X, 20X and 40X achromatic objective lenses, a 15X achromatic eyepiece allowing 150, 300 and 600 magnifications. It is equipped with an achromatic condenser, 6-aperture iris, two side piano and concave mirror. Shipped in a fitted hardwood case. \$29.95 Ppd.

**MECHANICAL STAGE** shown on instrument is an extra accessory. This is calibrated and made exclusively for the Model 635. Price \$14.95 postpaid. (If mechanical stage is not ordered, your instrument will be equipped with standard spring steel clip slide holders.)

**EXTRA EYEPICES** for Model 635 as follows (all prices include postage): 4X, \$2.95; 8X, \$3.45; 10X, \$3.95; 12X, \$4.65.

## NEW! 1953 SUMMER CATALOG FREE!

Send your name and address and receive this big, brand new catalog of world-record optical bargains! Amazing new microscope kits from \$9.95 to \$319. New low prices on coated lens telescopes and binoculars, all other kinds of optics for every hobby and profession.



the **AKRON** 4400 SUNSET BLVD.  
LOS ANGELES 27, CALIF.

DEPT

4-P

**MEN! TRAIN NOW FOR A BIG PAY FUTURE IN DIESEL & SCIENTIFIC MOTOR TUNE-UP**

- Diesel Construction
- Diesel Engine Repairman
- Diesel Operator
- Industrial Maintenance
- Auto Engine Rebuilding
- Bus & Truck Maintenance

**Be a Trained Diesel Man**

Go places with DIESEL! Farms, factories and power plants, trains, ships, trucks, busses all use DIESEL POWER . . . all need DIESEL-trained men! You can start your DIESEL training at home, in spare time, with tested, proved U.E.I. training. Course includes practical work on Diesel engines under skilled instructors. You learn the operation, maintenance, servicing of all types of Diesel engines, PLUS Scientific Motor Tune-up.

**ACT NOW!** If you have mechanical ability, you'll like Diesel! High School diploma not necessary. Write now for FREE book, "EARNING POWER IN DIESEL." Act Today!

**MAIL NOW FOR FREE BOOK!**

UTILITIES ENGINEERING INSTITUTE, Dept. DC-27.  
2521 Sheffield Ave., Chicago 14, Ill. (Founded 1927)

O.K.! Rush, without obligation, FREE Book on DIESEL.

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

Check here for information if under 17.

# GROW Living MIDGET TREES!

EARN \$10.00 PER HOUR!

- AT HOME
- IN SPARE TIME
- NO EXPERIENCE NEEDED

It's new! Amazing! At last, the secret of growing miniature (MING) trees can be yours. FULL GROWN, dwarf trees — only a few inches high. Beautiful miniature fir, orange, oak, Chinese elm, peach, pine, cypress—any kind! ALL BLOOM and even BEAR FRUIT. All perfect healthy specimens—but miniature in size! Make costly home decorations and expensive centerpieces. (SOLD FOR OVER \$1,500 EACH) Big demand. Costs only pennies—takes only minutes per week. IT'S EASY! Fun! A new fascinating hobby—a new fabulous \$\$\$\$ business. Send for free secret plan details and real seed.

**HELP US FILL HUGE DEMAND!**

These trees are being demanded by STORES CLUBS • HOTELS • FLORISTS • HOUSEWIVES • INTERIOR DECORATORS • COLLECTORS • HOBBYISTS—A Big Money Opportunity FOR YOU.

**FREE!** GENUINE SEED AND PLAN!

NATIONAL NURSERY GARDENS, Dept. M-4

8463 South Van Ness

Inglewood 4, Calif.

Rush me FREE plan and seed IMMEDIATELY!

Name \_\_\_\_\_

Address \_\_\_\_\_ Zone \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_



**DEALERS**

PAINT STRIPING TOOL packed in display cartons of 1 doz. Fast, profitable seller. Write for illustrated circular, discounts

Only

\$1.00

WENDELL MFG. CO., Dept. 34,  
4234 LINCOLN AVENUE, CHICAGO 18, ILL.

**Paint**

STRAIGHT,  
CURVED OR  
PARALLEL LINES

**Home Craftsmen**

Just the tool you've been waiting for! New Paint Striping Tool gives "professional" results every time, yet simple and easy to use as a fountain pen. Adjustable guide keeps lines straight as an arrow. Just as easy to make curves or free hand designs. Adds new beauty and finished look to everything you paint. Send \$1 now!

# RUPTURED?

Get Relief This Proven Way

Why try to worry along with trusses that gouge your flesh—press heavily on hips and spine—enlarge opening—fail to hold rupture? You need the Cluthe. No leg-straps or cutting belts. Automatic adjustable pad holds at real opening—follows every body movement with instant increased support in case of strain. Cannot slip whether at work or play. Light. Waterproof. Can be worn in bath. Send for amazing FREE book, "Advice To Ruptured" and details of liberal truthful 60-day trial offer. Also endorsements from grateful users in your neighborhood. Write:

CLUTHE SONS, Dept. 31, Bloomfield, New Jersey.

**NOW LEARN TV-RADIO Servicing AT HOME!**

EARN WHILE YOU LEARN! No previous training needed. New, simplified lessons with complete parts kits. Build your own TV set! A leading school, approved for Korean vets. Also Residential Course (day & eve. classes). Send for FREE sample lessons and full details on a profitable, thrilling career. Write Dept. B4

**CRESCENT SCHOOL**

500 PACIFIC ST.

BROOKLYN 17, N.Y.

# How to Get Ahead

SEE PAGE 23

# FREE

VALUABLE CATALOG OF BUSINESSES,  
F FARMS OR RANCHES AND INCOME  
PROPERTY—FOR SALE OR TRADE—  
THROUGHOUT WEST AND MID-WEST

Over 2000 offerings, approx. 200 pages. Contains vital information, prices, terms, earnings, lease, rent, names and addresses so that you can deal direct with owners. **ALL TYPES—FROM \$1000 to \$1,000,000** Retail, Wholesale, Industrial Plants, Factories, Service Businesses, Farms, Ranches, Groves, etc., large and small. No salesman will call. No commission to pay us. Simply write today for Free Catalog No. 76-F to **NATIONAL BUSINESS & PROPERTY EXCHANGE**, Dept. 76-F, 4101 West 3rd St., Los Angeles 5, Calif. (**Extra Free Service:** Write us exactly what and where you want to buy and we'll advise owners of your requirements.)

# WILL YOU SMOKE MY NEW KIND OF PIPE 30 Days at My Risk?

By E. A. CAREY

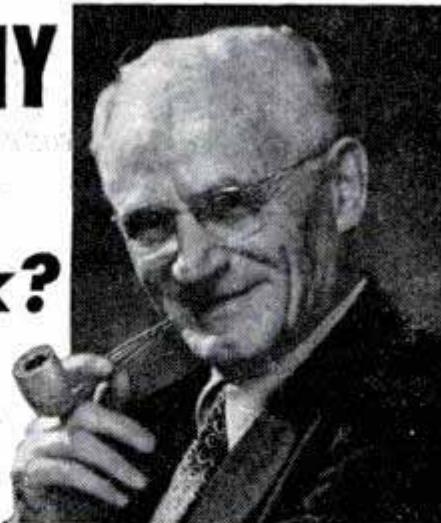
All I want is your name so I can write and tell you why I'm willing to send you my pipe for 30 days smoking without a cent of risk on your part.

My new pipe is not a new model, not a new style, not a new gadget, not an improvement on old style pipes. It is the first pipe in the world to use an ENTIRELY NEW PRINCIPLE for giving unadulterated pleasure to pipe smokers.

I've been a pipe smoker for 30 years—always looking for the ideal pipe—buying all the disappointing gadgets — never finding a single, solitary pipe that would smoke hour after hour, day after day, without bitterness, bite, or sludge.

With considerable doubt, I decided to work out something for myself. After months of experimenting and scores of disappointments, suddenly, almost by accident, I discovered how to harness four great natural laws to give me everything I wanted in a pipe. It didn't require any "breaking in". From the first puff it smoked cool—it smoked mild. It smoked right down to the last bit of tobacco without bite. It never has to be "rested". AND it **never has to be cleaned!** Yet it is utterly impossible for goo or sludge to reach your tongue, because my invention dissipates the goo as it forms!

You might expect all this to require a complicated mechanical gadget, but when you see it, the most surprising thing will be that I've done all this in a pipe that looks like any of the finest conventional pipes.



The claims I could make for this new principle in tobacco enjoyment are so spectacular that no pipe smoker would believe them. So, since "seeing is believing", I also say "Smoking is convincing" and I want to send you one Carey pipe to smoke 30 days at my risk. At the end of that time, if you're willing to give up your Carey Pipe, simply break it to bits—and return it to me—the trial has cost you nothing.

Please send me your name today. The coupon or a postal card will do. I'll send you absolutely free my complete trial offer so you can decide for yourself whether or not my pipe-smoking friends are right when they say the Carey Pipe is the greatest smoking invention ever patented. Send your name today. As one pipe smoker to another, I'll guarantee you the surprise of your life, FREE. Write E. A. Carey, 1920 Sunnyside Ave., Dept. 104, Chicago 40, Illinois

**E. A. CAREY, 1920 Sunnyside Ave.,  
DEPT. 104, CHICAGO 40, ILLINOIS**

Please send facts about the Carey Pipe. Then I will decide if I want to try it for 30 Days at YOUR RISK. Everything you send is free. No salesman is to call.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

FULL  
SIZE

**93 "ORIGINAL IDEA"**  
**JIG SAW PATTERNS**

Tired of old ideas?—Here's welcome news—a brand new series of 93 ORIGINAL, professionally drawn and clearly printed patterns. Beautiful shelves, toys, wall plaques, novelties, lawn ornaments, etc. Instructions for construction and finishing included. All for only \$1.00.

WALKER STUDIO PMD-4  
4343 Lindell St. Louis 8, Mo.

## Learn METALIZING at Home

Start your own business at home in your spare time with our amazingly inexpensive kit for Metalizing baby shoes and keepsakes. No experience needed. Get into this well-paying profession today and earn unlimited profits! Full information sent FREE.

THE MEDCO CO BOX 444-C CULVER CITY, CALIFORNIA

Buy happiness for crippled children. Use Easter Seals.

## King Shot

HUNTING SLING SHOT  
SILENT • POWERFUL  
Kill Small Game and Pests  
Interchangeable  
Use in Right or  
Left Hand

PERFECT GRIP  
SLANTED  
HANDLE



MOFFITT & DREYER King Shot Mfrs., Dept. P, 12025 S.E. Market, Portland, Ore.

## LEARN PHOTO COLORING RETOUCHING AIRBRUSHING

By one of America's foremost magazine and national advertising artists. A specialized field with a scarcity of good photo retouchers. Men and women making \$5,000 to \$25,000 a year. Avail yourself of a rare opportunity to participate in a course by mail of this profitable profession. WRITE

**PROFESSIONAL ART INSTITUTE**

DEPT. PM, 5653½ HOLLYWOOD BLVD., HOLLYWOOD 28, CALIF.

## High School at Home

## Many Finish in 2 Years

No classes. No time wasted going to and from school. Progress as fast as your time and abilities permit. Standard H. S. texts supplied. Thousands enroll each year in this 56-year-old school. Send for FREE descriptive booklet.

**AMERICAN SCHOOL, Dept. H445  
Drexel at 58th St., Chicago 37, Ill.**

Without obligation, please send FREE descriptive booklet.

Name \_\_\_\_\_

Address \_\_\_\_\_



## BUYS

Brand New, top quality glasses. All have precision ground optics, durable light-weight bodies. Moisture and dust proofed. Achromatic!

**EASY TO HOLD!  
FEATHERWEIGHT \$69.50  
16x50**

The ultimate in a fine binocular. Tremendous power. Feath- erweight (weights only 27 ounces!). Precision made in every detail. UNI-COATED\* providing sharper, brighter images. Individual focus. Objective lens is 50mm (2 inches) across! Same Style Model Center Focus. \$74.50!

**16x50**

**45.50**

**49.50**

**52.50**

**36.00**

**39.50**

**39.50**

**54.50**

**59.50**

**45.00**

**59.50**

**67.50**

**WEST POCKET SIZE MODELS**

**6x 4 1/2 oz. Chrome & Black. 375 foot Field. \$17.95**

**7x All Chrome Pocket, Economy Priced. 19.95**

**10x "TITAN MIDGET" 6 1/2 oz. Another United First. 24.95**

**Internal surfaces of VITAL front and rear Achromatics are COATED on pocket models assuring you brighter, sharper viewing.**

**12x50 Center Focus. 27 oz.**

**GERMAN WORLD'S LIGHTEST**

**8x30 4" x 5 1/4" 11 Oz! \$39.50**

**7x35 5" x 6" 16 oz! \$69.50**

**20x56 9 1/2" x 6 1/4" 28 oz. \$99.50**

Made in GERMANY, optical center of the world! Color corrected. Achromatics. Crisper viewing. Whisper Weight! CENTER FOCUS, prismatic binoculars with individually focusing right eye piece. Follow moving objects faster, easier. Enjoy clearer, sharper, brighter images.

**15x to 40x**

### 6 TELESCOPES IN ONE!

American made Wollensak telescope. Instant focusing at 15x, 20x, 30x and 40x, etc. Turn power tube to click—no guesswork. Telescope measures 9" closed, 27" when extended. Weighs 18 oz! Rustproof chrome tubes. All 12 optic surfaces are COATED. See 22 bullet holes clearly at 300 feet. Use also for astronomical observation. \$30.75 price includes fine leather case. Federal Tax Free!

### 20 POWER! Weighs 7 1/2 oz.

The 20 Power UNI-SCOPE is an all purpose "Whisper Weight" telescope. All metal, precision made. Measures only 8 1/4" closed, 13 1/2" extended. Inside of front Achromatic and rear Ocular Lenses are COATED! No Federal Tax.

**UNI-COATED\*** Assuring buyers the interior sides of VITAL Prisms and front and rear Achromatics have been COATED with Magnesium Fluoride to rigid UNITED requirements so users secure brighter, sharper, clearer images than ever before.

FROM 3 CONTINENTS come UNITED'S "Best-By-Test" binoculars. Made in Japan by skilled optical craftsmen, of quality precision materials to rigid UNITED requirements, unless noted to be from United States or Germany. It explains why the quality is so HIGH and the prices so LOW. All UNITED merchandise is UNCONDITIONALLY GUARANTEED.

**FREE!** 3 color 40 page catalog listing over 75 different models, UNITED, Zeiss, Hensoldt, etc. from \$14.95

**30 DAY NO-RISK OFFER** BUY-TRY any UNITED binocular for 30 days (one full month). If not satisfied return for full refund. Cash orders postpaid. C.O.D.'s require \$2.00 deposit. Add Federal tax. Binocular prices include handsome genuine leather case, straps!

**UNITED BINOCULAR CO.**  
UNITED Bldg., 9043 S. Western Ave.  
Dept. ARF-6108, Chicago 20, Ill.  
Display Sales Rooms open Mon. thru Fri. 9:00-3:30

**DEALERS  
WANTED**

## GET BIG PAY FOR EASY WORK IN TELEVISION

It's easy to learn TV servicing at home. Make money spare time while training. You build a 17-inch set and test instruments. Parts sent. Free job placement. Thousands of jobs waiting. Mail coupon today!

### COMMERCIAL TRADES INSTITUTE

1400 Greenleaf Ave., Chicago 26, Ill. Dept. T2-4

Send valuable free booklet on course checked:

<input type="checkbox"/> TELEVISION	<input type="checkbox"/> Refrigeration
<input type="checkbox"/> Auto Mechanics	<input type="checkbox"/> Upholstering
<input type="checkbox"/> Body-Fender Repair	<input type="checkbox"/> Drafting
<input type="checkbox"/> Diesel Mechanics	<input type="checkbox"/> High School
<input type="checkbox"/> Building Construction	
<input type="checkbox"/> Foremanship	
<input type="checkbox"/> Factory Mngt.	

Name \_\_\_\_\_ Age \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

## BUYS



## ACCORDIONS AT LOWEST WHOLESALE PRICES

**5-DAY  
FREE  
TRIAL**

**"PAY AS  
YOU PLAY"**

Small Down Payment  
As Little As

**\$10 per  
month**

**DIRECT from  
Importer to You!**

SATISFACTION GUARANTEED, or your money back! NOW you can save up to 50% by direct purchase from America's leading distributor of famous genuine ITALIAN ACCORDIONS.

Send for FREE Illustrated Catalog!

**ACCORDION MANUFACTURERS & WHOLESALE OUTLET**

2003 West Chicago Ave. Dept. R-43, Chicago 22, Ill.

## Malayan THROWING DAGGER

**BALANCED TO STICK! \$1.98**

**MALAYAN HUNTING KNIFE**

used for killing game.  
Exciting Target Sport,  
Easy to learn! Fun  
indoors or outdoors!

**EASY TO  
THROW!**

**MONEY BACK GUARANTEE**  
Indoors-outdoors.  
Learn this Sport! Easy  
to throw accurately with our  
clear instructions. Beautiful, heavy-  
duty 10" knife. Tempered steel. Tough,  
rowhide-bound handle. Rare souvenir, unusual  
bargain. Limited quantity. At dealers or send \$1.98

WHOLESALE IMPORT CO. Dept. K, 604 Marengo, Alhambra, Calif.

## GROW WITHOUT SOIL



YOU can grow vegetables, flowers or rare plants without soil (HYDROPONICS) every day of the year. Start this fast, clean EASY way to grow any plant for fun or PROFIT now. Big returns from small space. Send postcard today for FREE picture book showing how others from every state are succeeding in this new wide open field.

GILBERT CO., Box 22-M, San Diego 6, Calif.

## LEARN LOCKSMITHING

from world's greatest locksmith.  
The original approved school.

### NAT'L LOCK SCHOOL

38 East Santa Clara Street San Jose 13, California

## Broken or Loose FALSE PLATE?



**Fix it Yourself EASILY in a Few Minutes**

Your plates may become broken or loose just when you need them most. With FIX-IT-KIT you can repair your own broken plates. Also tightens loose fitting plates, easily. Get permanent comfort with professional material. Complete instructions. Satisfaction guaranteed or your money refunded. Order Now at a new low price only \$2.98 postpaid—or sent C.O.D. Plates Like New

DENT-FIX DENTAL PRODUCTS, Dept. PM-4,  
P.O. Box 674 Kansas City 8, Missouri

## Wheels



## Wheels

## Wheels

## Wheels

5" Disc Wheel 5 1/2" Tire 5 1/16" or 3/8" sleeve.	30c ea.
6" Disc Wheel 5 1/2" Tire 5 1/16" or 3/8" sleeve.	35c ea.
7" Disc Wheel 3 1/2" Tire 3 1/2" sleeve.	45c ea.
8" Disc Wheel 11 1/2" Tire 1 1/2" sleeve.	70c ea.
7" Disc Wheel 1 1/2" Tire 1 1/2" ball bearing.	80c ea.
8" Disc Wheel 1 1/2" Tire 1 1/2" ball bearing.	\$1.00 ea.
9" Disc Wheel 2" semi-pneum. T. 1 1/2" B.B.	\$1.50 ea.
10" Disc Wheel 1.75 semi-pneum. T. 1 1/2" B.B.	\$1.50 ea.
12" Disc Wheel 1.75 semi-pneum. T. 1 1/2" B.B.	\$1.85 ea.
Above wheel prices includes hub cap. Plus Postage. C.O.D.'s accepted.	
AXLES—Sizes 5/16 in., 3/8 in., 1/2 in.—Cut to size—End holes drilled.	

UNITED WHEEL STAMPING CO.  
12131 S. PEORIA STREET PM-4 CHICAGO 43, ILLINOIS



# PLASTIC LAMINATING

Make \$20 to \$30 a day by our MAGIC MAIL PLAN—get orders and cash from your mailman!

Here's the newest and most fascinating of all home-operated businesses. For the first time, a simplified machine brings the fabulous profits of Plastic Sealing and Plastic Laminating within the reach of the small operator. Can be operated in a corner of the kitchen, basement, or garage.

And any man or woman, regardless of age, education or experience can learn this interesting work IN A FEW MINUTES OF READING—can turn out professional jobs after one hour's practice.

## TWO EXCITING SOURCES OF PROFITS!

No house-to-house canvassing. No face-to-face selling. We not only supply the equipment you need for the work, but also show you exactly how to bring in big daily profits from two big-demand fields.

### A FORTUNE IN PLASTIC SEALING

Millions of people want to protect valuable cards, photographs, documents and papers against wear, soil, and damage. By our MAGIC MAIL Plan you get this business through the mails. Open envelopes and take out money and orders. Details of this plan will be sent free. Just mail coupon.

### BIG PROFITS IN LAMINATING

A creative, artistic business. Gift shops sell your entire output. Just a few of thousands of giftwares illustrated on this page. Beautiful colors.

**RUSH COUPON** Never before has such an opportunity been offered the small, home-operator—an opportunity to gain complete personal independence in a big money business of your own. Don't lose a minute. Get the facts at once. All information, fully illustrated with pictures, is free. Send the coupon—or send your name and address on a postcard. There is no charge now, or at any other time. Send for the information on this exciting opportunity today.

**WARNER ELECTRIC COMPANY**  
1512 JARVIS AVE., DEPT. L-104, CHICAGO 26, ILLINOIS

Use Easter Seals. Help Crippled Children.

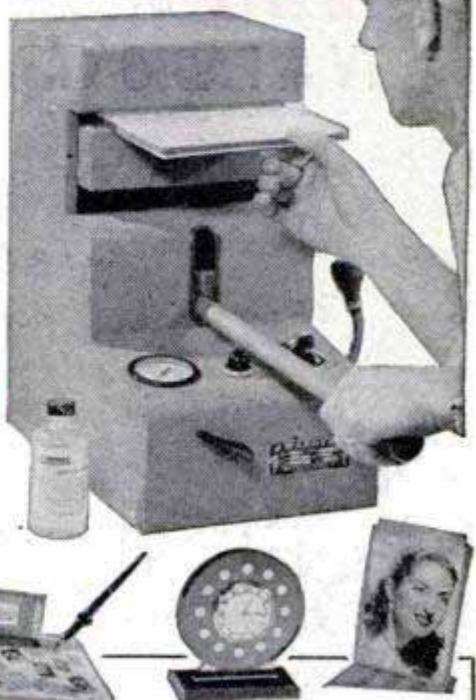
#### NYLON Reversible Auto Seat Covers

Coated NYLON Seat Covers That Can Be Used On Either Side. Forest Green Effect On One Side—Two toned Foliage Effect On The Reverse. Water-proof—Cleansed with A Damp Cloth. Heavy Grade NYLON will resist Rough Treatment. Side Vinyl Panels To Cover Front and Sides of Seat. Separate Roomy Cover For Back of Seat And Separate Full Panel to Fit Snugly Over Seat. Proper For Tailor Fit. Simple Installation—No Tacks or Nails Needed. Guaranteed to Fit your car or Money Back within TEN DAYS. Specify Type of Car and Seats Desired. Split or Solid Front Seat ONLY \$3.98. Full Rear Seat ONLY \$3.98.

Enclose Payment For Prepaid Delivery, or Send C.O.D.  
**MARDO SALES CORP., Dept. NY-367**  
ROOM 1115 480 LEXINGTON AVE. NEW YORK 17, N.Y.

## FREE!

The opportunities in Plastic Laminating are so big that space here does not permit even skimming the surface. You must read the details. See for yourself how easy it is to do the work—how you can put plastic sheets into your machine and take out a fortune—how money and orders come to you in the mail—how gift shops clamor to get more and more of your creations—how you can achieve independence without any study or experience.



#### Thousands of Beautiful Art Creations

Made by Laminating as explained in our Free Information. Send coupon for list and pictures of Costume Jewelry—Jewels—Cigarette Boxes—Cuff Links—Novelty Buttons—Trays—Candlesticks—Coasters—Clock Cases—Lamp Bases—Picture Frames—Book Ends—Charms—Advertising Signs—Name Plates—Belt Buckles, Etc.

**\$5—\$10—\$20 BILLS  
COME TO YOU BY MAIL**

By our MAGIC MAIL Plan you sit at home send out mail, and get back money and orders. Additional profits in supplying local people with lifetime protection against wear, soiling, and moisture damage for: Snapshots—Identification Cards—Discharge Papers—Drivers' Licenses—Social Security Cards—Credit Cards—Birth and Wedding Announcements and Certificates—Passes—All Important Documents.

**WARNER ELECTRIC CO., Dept. L-104  
1512 Jarvis Ave., Chicago 26, Illinois**

Please mail, postage prepaid, complete information with illustrations showing the things I can make and the money possibilities in Plastic Laminating. All this is free. No salesman is to call. Also, tell me how I get orders and money from my Postman by the Magic Mail Plan.

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

#### Develop Hidden Earning Power

## STUDY LAW at home! LL.B. Degree

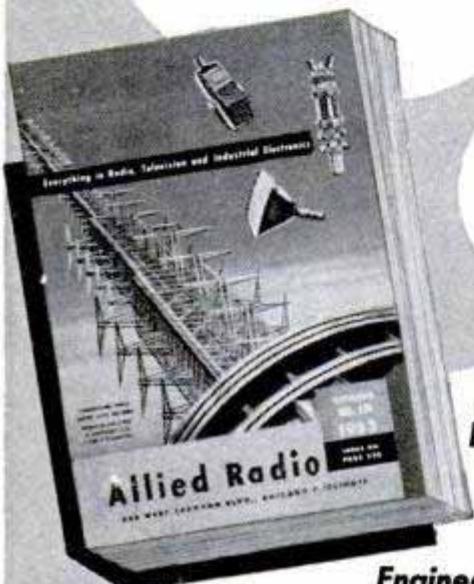
Qualify yourself in spare time for advancement, greater earnings, business success. Now, more than ever, legal ability is in demand! Easy-to-understand step-by-step lessons and text material furnished—valuable for permanent reference. Over 40 years expert instruction. 114,000 students enrolled. Easy payments. Find out now, at no cost, how study of law can help you. Write today for FREE Book "Law and Executive Guidance."

**AMERICAN EXTENSION SCHOOL OF LAW  
Dept. PM-61, 664 N. Michigan Ave., Chicago, Ill.**

# World's Most Complete! 1953 ALLIED TV & RADIO CATALOG

**FREE!**

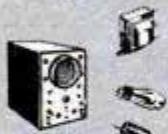
Everything in TV & Radio  
At Lowest Prices



236 PAGES  
VALUE-  
PACKED

Everything for  
Experimenters,  
Builders,  
Amateurs,  
Servicemen,  
Engineers, Soundmen

Send for ALLIED's big 236-page value-packed guide to everything in TV and Radio! Custom TV chassis, TV accessories, FM and AM radios, Amateur supplies, High-Fidelity Sound, P. A. Systems, recorders, test instruments, builders' kits—plus the world's largest stocks of electronic parts, tubes, tools and books. Get more for your money—send today for your FREE 1953 ALLIED Electronics Catalog!



SEND FOR  
FREE  
CATALOG

## ALLIED RADIO

ALLIED RADIO CORP., Dept. 5-D-3  
833 W. Jackson Blvd., Chicago 7, Illinois

Rush FREE 1953 ALLIED 236-Page Catalog.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Famous 15 and 17 Jewel \$16.95  
**BULOVA WATCHES**  
PLUS TAX

PRACTICALLY WHOLESALE TO YOU

UNLIMITED SERVICE GUARANTEE  
Why Pay  
**\$59.50**  
SAVE \$42.55  
ALSO CHOICE OF  
• BENRUS • GRIEN  
• WALTHAM OR  
• ELGIN WATCHES

You get these unredeemed SERVICE guaranteed Bulova and other movements in latest style Yellow Gold Cases at this sensational low price because we bought out SURPLUS STOCKS of leading New York and Md. jewelers. Order now while they last. Specify make preferred and whether men's or ladies'. Only \$16.95 plus \$1.70 tax. Order right now.

**FREE TRIAL OFFER! WEAR AT OUR RISK!**  
Money back guarantee in 10 days if not delighted!

**SERVICE** Guaranteed  
—17 Jewel Swiss  
**WRIST WATCH**  
Worn by Army, Navy  
& Marines  
Thousands sold for  
\$55 under O.P.A.  
**\$14.95** \$1.50  
Plus  
Tax  
New Incablock, Shock-  
Protected  
Damp & Dust resist.

**FREE!** Handsome Expansion band  
with orders at no extra cost.  
**MARYLAND DISTRIBUTORS, Dept. 508**  
501 E. BALTIMORE ST., BALTIMORE 2, MD.  
Write for Free Watch and Diamond Ring Catalog — Practically Wholesale Prices.

## If Ruptured

and No Lasting Relief, even after surgery, practice holding back your rupture or ruptures with both hands and fingers as illustrated. If this Delightful No Rupture Sensation Is What You Want write for Free literature now! Why keep on experimenting until you become another Rupture invalid!

**FRED B. MILLER, Mfr.**  
Dept. 61, Hagerstown, Maryland.



**GET UP TO 40% OFF!** **BUY IT WHOLESALE!**

**START A BUYING SERVICE** at home, spare time. Get big-name merchandise for clients (and yourself) up to 40% and more below the regular list price. Make fat commissions. Folks eagerly buy through you to get sizeable discounts. Send postcard for details.

AMERICAN BUYERS' SERVICE, 631-R Linden Ave., Buffalo 16, N. Y.



## MONEY in HAMSTERS

The new wonder animals from Syria. Often called Toy Bears. Delightful pets. Everyone desires them. Wanted by laboratories and pet shops. Clean, odorless. Raise anywhere. A profitable hobby or business. Write today for free book of details.

**GULF HAMSTERY**, 16 Jay St., Gulf Shores, Ala.

MAKE **CRIME** YOUR BUSINESS

## ON THE SIDE OF THE LAW!

Help fight crime! ... Earn steady good pay as a Finger Print Expert or Investigator. I.A.S. trains you—by easy, low-cost home study lessons. Learn this exciting work in spare time. Write for full details now!

## OVER 800 POLICE BUREAUS...

Employ I.A.S.-trained men... proof of what I.A.S. can do. Write today (state age) for details. No obligation. No salesmen will call.

## INSTITUTE OF APPLIED SCIENCE

Dept. 1354, 1920 Sunnyside Avenue  
Chicago 40, Illinois

# NORMAN ROCKWELL says: "WE'RE LOOKING FOR PEOPLE WHO LIKE TO DRAW!"



Norman Rockwell,  
noted cover artist,  
faculty member of the  
Famous Artists Course

## America's 12 Most Famous Artists Test Your Talent

This test for men and women shows your sense of design, composition, form, observation, imagination, originality and picture sense. Yours if you act today!



If you have talent, you can be trained for success and security... Find out with our  
**FREE ART TALENT TEST**

Never before has there been such a demand for artists to fill high-paid jobs. That's why America's 12 Most Famous Artists make you this special offer: Even though thousands paid \$1.00 to take our revealing 8-page Talent Test, it's yours FREE if you

act at once. This is your once-in-a-lifetime chance to find out if you have real, hidden talent—without charge or obligation of any kind. Quantity of tests is limited. You must mail coupon NOW!

*Norman Rockwell*

**THIS COUPON ENTITLES YOU TO FREE TEST!**

## FAMOUS ARTISTS COURSE

Studio 6-D3, Westport, Connecticut

Send me with no obligation the Famous Artists Talent Test

Mr. \_\_\_\_\_ Age \_\_\_\_\_

Mrs. \_\_\_\_\_

Miss \_\_\_\_\_ (please print)

Address \_\_\_\_\_

City, Zone, State \_\_\_\_\_

Norman Rockwell  
Jon Whitcomb  
Stevan Dohanos  
Harold Von Schmidt  
Peter Helck  
Fred Ludekens  
Al Parker  
Ben Stahl  
Robert Fawcett  
Austin Briggs  
John Atherton  
Albert Dorne

## EASY TO LEARN CODE

Learn to increase speed with an Instructograph—the Radio-Telegraph Code Teacher that takes the place of an operator-instructor and enables anyone to master code without further assistance. Available tapes from beginners' alphabet to typical messages on all subjects. Speed range 5 to 40 WPM. Always ready—no QRM. Thousands have "acquired the code" with the Instructograph System. Write today for convenient rental and purchase plans.



### INSTRUCTOGRAPH COMPANY

4701-V Sheridan Road, Chicago 40, Illinois

## Become a Doctor of PSYCHOLOGY

Win the degree of Ps.D. Learn the secret of contentment, happiness. Solve mental worries. Experience the revelation of truth. Chartered college. Individual help. Write for FREE book. COLLEGE OF UNIVERSAL TRUTH, 5038-B Broadway, Chicago.

GIVE THE HANDICAPPED A CHANCE.  
USE EASTER SEALS.

## LEARN ELECTRICAL APPLIANCE REPAIRING & INSTALLATION

Start Your Own Business

Revolutionary NEW TRAINING METHOD, trains you AT HOME in just a few short weeks.

You receive big "On-the-job" home training kits, text equipment, audio instructions & practical service training lessons. You learn how to Service, Repair & Install all types of Electrical Appliances & Equipment. How to build & operate your own business, etc.

### YOU EARN AS YOU LEARN:

You charge on basis of \$3.00 to \$5.00 per hour for spare time work!

Write today for your Free Book, and full details about this amazing opportunity for you in Modern Electric Servicing.

**BIG  
BOOK  
FREE**

ADVANCE TRAINING, Dept. 801  
5944 N. Newark Ave.

Chicago 31, Ill.

### MEN—WOMEN

Postoffice Clerks—  
Carriers  
Railway Postal  
Clerks  
Stenographers  
Accountants  
Immigrant  
Inspectors  
Typists  
Customs  
Inspectors  
Many Other  
Early Jobs  
Veterans  
Get Preference

FRANKLIN INSTITUTE  
(Not Government Controlled)  
Dept. X-83,  
Rochester 4, N. Y.

COUPON

Gentlemen: Rush to me, FREE of charge, list of U. S. Government big pay jobs. Send FREE 32-page book describing salaries, vacations, hours, work, etc. Tell me how to qualify for one of these jobs.

Name \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ Age? \_\_\_\_\_

MAIL  
COUPON  
TODAY  
SURE

**SILVERED OPTICAL PRISMS**

Solid glass with 1 silvered facet precision ground and polished— $5\frac{3}{4}$ " long, base  $2\frac{1}{2}$  in. wide, sides  $1\frac{1}{2}$  inches. Free from scratches, abrasions and imperfections. Use in any type optical system—photography, telescopes, etc. Weight each  $2\frac{1}{4}$  lb. A \$25.00 value. Stock No. 556. Each. **\$2.00** Four for \$5.00

**MESS KITS, CANTEENS, ETC.**

Regulation two-piece Army Mess Kits with folding handle. Used, but perfect. Weight 2 lbs. No. A116-Ea. **69c**

**CANTEENS**

Reg. U.S. issue canteens. Plastic screw top chained to body. Slightly used but perfect. Wgt. 1 lb.

117-Metal Ea. **69c**

**CANTEEN COVERS**

Heavy canvas. Button fastener. New No. 530-Each. **69c** Used No. 119-Each. **35c**

**CAVALRY SPURS**

Genuine Wishbone type cavalry spurs. Nickelized brass. A102, Pair with straps. **98c**

**RADIO HEAD-PHONES**

Extremely sensitive with 4000 ohms resistance. Slightly used but guaranteed perfect. With moisture-proof cord and phone plug. A splendid value for the radio serviceman and experimenter. A106-Pair. **\$2.95**

**WIRE CUTTER**

Heavy duty, compound leverage. Cuts up to  $\frac{1}{4}$  inch wire. Upper jaw acts as feeder to cutting edges. Insulated handles. Ideal for farm fence work and shop use. Shp. wgt. 2 lbs. Stock No. 392-Each. **\$1.95**

**G. I. PISTOL BELTS**

Of heavy canvas webbing. Adjustable. Elevated all around. Used but perfect. Wgt. 2 lbs. No. 131, Each. **49c**

**SUPERENCH**

Now Automatic World's Wonder Wrench. Fits all size nuts up to  $1\frac{1}{4}$ ". A tool kit of wrenches in one. Ship. wt. 1 lb. Stock No. 378. **\$1.45**

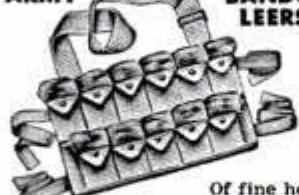
**NYLON PARACHUTE CORD**

500 lb. breaking strength. 7 strands of nylon incased in nylon cover. Strong, extremely pliable. Ideal wherever great strength for lightweight cord is required. 25 ft. to 3000 ft. length. An outstanding bargain, buy while supply lasts. No. 310. Per foot, only. **2c**

**SATCHEL POUCH**

Heavy canvas pouch. Ideal for totting lunches, shopping, books, etc. Has  $11\frac{1}{2}$  x  $12$  inch pocket. Brand New, guaranteed perfect. Has oversize flap with single strap fastener. A113-Each.

**\$1.69**

**ARMY BANDOLEERS**

Of fine heavy khaki. Big roomy pockets with snap button fasteners. Fine for hunters, campers, boy scouts, etc., also for shop work in carrying small parts, etc. Can be used by spinning fishermen to carry tackle. Material alone is worth this price. Ship. wt. 1 lb. 11 Pocket Type No. 664-R-Each. **49c** 5 Pocket Type No. 128 Each. **29c**

**U.S. WAR SURPLUS AND HUNDREDS OF OTHER BARGAINS****NINE-PIECE TWIST DRILL SET**

Nine popular sizes for home craftsmen, shop, industrial worker.  $1\frac{1}{2}$ " to  $2\frac{1}{4}$ " in length. Diam. from  $1/16$ " to  $1/4$ ". Carbon tool steel, hardened and tempered. Plastic container. Ship. wt.  $\frac{1}{2}$  lb. Stock No. 210-An Unequalled Value, Only. **49c**

**HEAVY DUTY CAMERA TRIPOD**

HARDWOOD; slightly used—need repairing and cleaning; adjustable; folds to 32" length, extends to 58"; equipped with mud spikes; carrying strap; for all large cameras;  $1\frac{1}{2}$ " mounting stud; extra sturdy design. Ship. wt. 10 lbs. Stock No. K-190. Price, Each. **\$2.95**

**POST COMMAND WALL TENTS**

A "best buy" for campers, construction engineers, outdoorsmen. Big and roomy,  $7 \times 12$  ft. in ground space, 7 ft. high at center and 6 ft. high walls. Olive drab color. Treated to provide fire, water and mildew resistance. Used but complete and perfect in every way. Available with or without poles as listed below. Poles consist of 6 upright 74 in. poles, 2 upright 86 in. poles jointed and one jointed ridge pole  $14\frac{1}{2}$  in. long, plus 10 16-inch rope stakes. Ship. wt. 75 lbs. with poles 100 lbs.

TENT, LESS POLES TENT, WITH POLES  
No. 399- Each. **\$29.95** No. 400- Each. **\$39.95**

4 mounted lenses. Can be set up into various types of optical systems with various degrees of magnifying power. Three lenses are of compound design consisting of two glass elements in each mount. The fourth lens is of pupillary type for use as an eye-piece. Lenses range from  $1\frac{1}{4}$ " to 1" in diam. Ship. wt. 2 lbs. Stock No. 434. per set of four. **\$5.00**

SPARKLET CARTRIDGES

May be used with life belts and hundreds of other uses. In boxes of 10. Stock No. 254. Per Box. **50c**

**McCLELLAN SADDLE**

Brand new! Top grade cowhide, 12 inch seat. Hairgirth. Has straps for blanket roll and knapsack. Gun boot and sabre loops. Shipping weight 15 lbs. Stock No. A145. Each. **\$16.95**

**BAYONET BLADE**

Fine forged steel. Ground but not polished. May be made into throwing or hunting knife or spear-blade. 6 $\frac{3}{4}$  x  $1\frac{1}{2}$  inches, 11 $\frac{1}{4}$  inches overall. Will take and hold a fine edge. Shp. wt. 1 lb. No. 664-R-Each. **49c**

**50 ASS'T. HOSE CLAMPS ALL BRAND NEW**

Big ones, little ones. Some rubber lined, some with thumb screw take-ups, some with bolt take-ups. Big variety styles, sizes. Ship. wt. 2 lbs. Stock No. 488. Value \$5.00 or more. Assortment of 50, Only. **98c**

Extra heavy. For farm, home or jungle use. Blade of Govt. formula cutlery steel. Walnut riveted handle,  $3\frac{1}{2}$  inch blade,  $10\frac{1}{2}$  inch long. You'll find hundreds of uses for a Bolo knife. Blade will take and hold a keen cutting edge. Wt. 2 lbs. A112-  
with Army Sheath. **\$2.95**

**CLINOMETER SHOWS DEGREE OF INCLINE**

The pendulum acts as a plumb bob. It swings back and forth over a calibrated scale that shows you the degree of incline. Use on ships to show amount of roll—may be used for any purpose where it is desired to determine the degree of incline. Plastic body  $12 \times 7$  inches. Brass pendulum in black finish. Shipping weight 3 lbs. Stock No. 393. Each only. **\$2.95**

**U. S. Govt. BOLO KNIFE**

Extra heavy. For farm, home or jungle use. Blade of Govt. formula cutlery steel. Walnut riveted handle,  $3\frac{1}{2}$  inch blade,  $10\frac{1}{2}$  inch long. You'll find hundreds of uses for a Bolo knife. Blade will take and hold a keen cutting edge. Wt. 2 lbs. A112-  
with Army Sheath. **\$2.95**

**ARMY SLIDE RULE**

An accurately calibrated slide rule with two extra slides—for quick computation of range for artillery fire. Measures  $18 \times 3$  inches. Provides for wind direction, deflection, trajectory, etc. Shipping weight 2 lbs. No. 544. Each only. **\$2.50**

**GENUINE GERMAN SABRE**

Genuine sabres with  $21\frac{1}{2}$  in. high quality steel blades,  $4\frac{1}{2}$  in. handle grip. Comes with protective sheath, can be worn on belt. Decorative for den, and dependable tool for many uses such as cutting underbrush, pruning, etc. Fine for hunters, campers. Used but in perfect condition. Ship. wt. 5 lbs. Stock No. 309. Complete, Sabre and Sheath, only. **\$2.95**

**GENIE HANDCRAFT TOOL KITS**

An amazing array of fine handcraft tools for carving, cutting, punching, drilling, sawing, filing, etc. in wood, plastic, soft metal, leather, cloth, cardboard, etc. Each set includes one or two tool holders with positive grip vise chuck, plus an assortment of tools. Small set includes 4 assorted cutting tools. Set No. 442 includes cutting blades, hole punch and saw. Large set includes all knives, saw, plus drills and hole cutters. Sets are attractively boxed in solid wood box.

**STOCK NO. 441**

Beginners' set. Consists of 5 tools and handle. **\$1.45**

**STOCK NO. 442**

Advanced worker's set. Has chuck handle, extra chucks and eleven working tools. Set Only. **\$2.95**

**VEEDER-ROOT COUNTERS**

Three wheel type—counts to 999 and repeats. Has hundreds of uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

12 lbs. **\$2.95**

VEEDER-ROOT COUNTERS

Three wheel type—counts to 999 and repeats. Has hundreds of uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

uses. All brand new. A splendid value. Shipping weight 1 lb. Stock No. 241. **\$1.79**

**WORLD'S  
BEST  
WANT AD  
MEDIUM**

# CLASSIFIED *Advertisements*



Advertisements in this section 85 cents per word, each insertion, minimum 10 words, payable in advance.

To be inserted under proper classification, copy must be in our office the

20th of the second month preceding date of issue

F. W. Johnson, Manager, Classified Advertising

Popular Mechanics Magazine, 200 East Ontario Street, Chicago 11, Illinois

## YOU'LL PROFIT

By reading and answering the classified ads in this section. Hundreds of opportunities for you to make and save money

### AUTOMOBILES. MIDGET CARS

MAKE Your own foreign car body. Polyester-Fiberglas. New catalog. Instructions, wholesale prices. 10c. Airmailed 35c. Gem-O-Lite, Box 6862-N. North Hollywood, California.

ANTIQUE And hard to get cars for sale by owners. Send \$1 for bargain lists. CapLan, 520 W. Jefferson, Lansing 6, Mich.

SPECIAL Offer—Hot rod cam shaft regrinding. Many \$19.50 exchange. Auto Electric Service, Box 54, Anderson, Ind.

AUTO Body, refinishing shops, personnel, "profitable sidelines," complete \$1.25. Lawrence Andre, Sag Harbor, N. Y.

THOUSANDS Of buses, cars, trucks, farm tractors and power units now saving 5 to 11 cents per gallon on fuel and up to 50% and more on oil and engine maintenance using LPG motor fuel. You can do the same! For pictures, sketches, list of users and information on how it is used and where to get equipment and fuel, send \$2.00 now. Bill Wroten, 2932 Eugene, Baton Rouge, La.

1953 SUPERIGNITIONER: Starting, pep, mileage; \$4.50. Barbells wholesale. EG, Elmsford, N. Y.

FREE Motor magazines; automobile literature, old, new and foreign; glossy photos, dealer books; shop manuals—Offered with non-profit organization. Write today; get on free mailing list. Auto Maniacs, Stockbridge, Mich.

SAVE — California custom accessories headquarters. Buy direct from original designers. Chrome dash panels, electric push button door-trunk conversions, fender skirts, dual mufflers, lowering kits, speed-dress up equipment. 40 page catalog, hundreds of photos—25c. Eastern Auto, 3319A South Grand, Los Angeles 7, Calif.

HI-Mileage-Speed equipment from the world's largest supplier. Also dual manifolds, finned heads, electric trunks, doors, lowering sets, chrome panels, thousands of items for all cars. 1953 catalog 25c (illustrated literature free). Wholesale to garages. Newhouse Automotive Industries, Los Angeles 22.

### AUTO SUPPLIES AND EQUIPMENT

3 MINUTE Auto waxing guaranteed. Easy electric Clintonizer \$9.95, gallon Clinton Spray Wax waxes 42 cars. \$13.50. Write Clinton Spray Wax Corp., 3651 Albion, Lincolnwood 45, Illinois.

LUBRIWICK Safety wheel pack. Autos \$1.50, trucks \$11.00 per set two wheels. No c.o.d. Douglass Prod. Co., 2410 Auburn Blvd., Sacramento 21, Calif.

LACHAPELLE'S Treatment. (Patented.) For a better motor for \$3.00. Write, Ferns Products, 8120-B Walnut Dr., Los Angeles 1, Calif. for free information.

FREE Information on lighting Powerglide or Dynaflo dial. Gaiser, Box 25, Kokomo, Indiana.

NEW Garden hose air, paint spray with fittings any length 8c ft. Bate's Rubber, Box 501, Wildwood, N. J.

CUSTOM Radios for 1952 and 1953 Fords \$44.50. Write for literature. Nordic Radio Co., Box 582, Evanston, Ill.

YOU Save dollars. Wire wheel discs \$20.95 up. Free information. Tennessee Tires and Accessories. LaFollette 2, Tenn.

BRAKE Cable oilers make cars run free. Cuts operating cost. Set two \$1.95. Money back guarantee. Williams, 1349 Bryden Rd., Columbus 5, Ohio.

MINIATURE Signal-Traffic Guide. Fits any car. \$5.95. Signalguide, 710 Venice Blvd., Los Angeles 15.

LACHAPELLE'S Treatment. Canadian distribution. Master, Box 3, Station C, Hamilton, Ontario.

ECONOMICAL Lubrication with MOS2. Write Molyplate, Box 303, Palo Alto 2, California.

CHEVROLET Dual intake manifolds and kits. Discount plan 10c. Autopower, 1753-D North Eastern, Los Angeles 32, Calif.

CUSHMAN Wizard speed camshafts. \$6.50 exchange. Weber Cams, 4200 Whiteside, Los Angeles, Calif.

COMBINATION Map light and cigarette lighter. Plugs into lighter socket. \$2.75 postpaid. J. Grant, 721 28th, South Bend 15, Indiana.

DOUBLE Action Crumbliss super coil permits 40 to 50 thousandths plug settings! More hp! Top performance! Write: White's, Catawissa, Penna.

AMAZING Invention. Lachapelle's genuine motor treatment. Renews old motors. Restores compression, power. Saves gas, oil. Keeps new motors new for only \$3.00 delivered. Money back guarantee. Free circular. Write Joe Dillon, Authorized Warehouse and Agents Distributor, Box 323-F Bridgeport, Ohio. Distributors and agents wanted. Exclusive territory. Beware of imitations.

WOLF Whistle auto horn, \$3.00. Charter Oak, 256A 145 Ave., St. Petersburg 6, Fla.

CHAMOIS—Genuine. First quality. Exceeds U. S. government specifications. 18"x24", \$2.00; 28"x32", \$3.00 postpaid. Victor Calamia, 334 Manhattan Ave., Brooklyn 11, N. Y.

MOTORIST Save gasoline by Vacu-mating overrich mixtures. Fits all cars. For free particulars write Vacumatic, Dept. 2005, Wauwatosa, Wis.

CRASHPROOF Your car Rusco airplane safety belts now available for passenger-car installation. The Russell Manufacturing Company P. O. Box 1001, Middlebury, Connecticut.

AUTO Trunk light—Complete kit. Mercury switch, bulb, socket, wire and hardware with instructions. Price \$2.00 per kit postpaid. No c.o.d. Electro-Devices, Inc., 247 Broadway, Paterson 1, N. J.

LET'S Trade. Have brand new 600-16 tires (slight seconds). Trade 1 tire for 7 cartons Chesterfields cigarettes. Have beautiful jeweled men's wristwatches with expansion band. Trade 1 wristwatch for 6 cartons Chesterfields cigarettes. Have 40 ft. extension light with bulb guard. Trade for 2 cartons Chesterfields. Tom Sheehan, 1154 Van Buren St., Chicago 7, Ill.

RUNRUST Chrome rust remover and cleaner. No rubbing, no drying. Apply then wash. Guaranteed to clean pitted chrome. Mail order size \$1.00 per bottle postpaid. RunRust Corp., 411 Hyde Park, Niagara Falls, New York.

BUY Speed equipment without money. No selling. Information free. Newhouse Industries, Los Angeles 22.

MOTORISTS, Truck owners, hot rod and sport car enthusiasts. Here's what you've been looking for. Largest and most complete automotive parts and accessories catalog in America. 1953 edition — 132 pages (illustrated) shows all parts, from a cotter pin to a complete motor and accessories for all makes, all years, including 1953, all models cars and trucks. Pages and pages for hot rod and sport car enthusiast. Hollywood accessories to give your car individual styling. 50,000 items listed at savings up to 50%! Don't miss it! Send 25c now (refundable). J. C. Whitney & Co., 1919 W. Archer, Chicago 16, Ill.

AUTO Radios at wholesale. Standard brands. List free. Regent, 801 West Erie, Philadelphia.

HYDRAULIC Jack repair kits. Repair your own. Send for prices. Jack Parts Company, 2000 South Claiborne, New Orleans, La.

"AUTO Starch"—Aid to easy, beautiful car waxing. Can \$1 postpaid. Aero Precision, Box 971, Escondido, California.

CHEVROLET Owners: Stop tappet noise with Kaye Tappet Silencers. Quality product. Easy to install. Complete set \$5.95. Kaye Products, P.O. Box 1423, Milwaukee, Wis.

WEBER Degree plates. Easy to time and check cam shafts. Maximum engine performance. \$9.95. Weber, 4200 Whiteside, Los Angeles, Calif.

"WATER Injection." Free descriptive, illustrated, information. Neher Industries, LaVerne, California.

HI-Compression heads \$15.95 up. Write Auto Parts Service, West Salem, Ohio.

ELECTROPLATE Auto parts, novelties, mirrors. Easy, inexpensive home processes. Free booklet. Tyco Metals, Box 13231-BG, Houston 19, Texas.

GM71 Discarded injector parts wanted. Bares, 7120 Carnegie, Cleveland, Ohio.

SPEED Equipment. Edelbrock, Offenhauser, Navarro heads, manifolds, Winfield cams, dual ignition points. Chev. 37-51, Ford 49-51. Deeptone mufflers, headers, dual muffler sets, Mallory coils, distributors. Speed catalogue 25c. Urzil's Auto Supply, San Jose, California.

NEW And used guaranteed parts for civilian and army cars and trucks. Largest stock in America. Mail orders. Pioneer Auto Wrecking Co., 734 W. 13th Ave., Denver, Colorado.

AUTO Parts and accessories. Briggs Automotive Engineering of Chicago, P.O.B. 3454 Merchandise Mart, Chicago 54, Ill.

BRUSH Plating outfits connect to a battery. No tanks or shop required. Free particulars. Gunmetal Co., Ave. J., Decatur, Ill.

FIBERGLAS—Plastics for bodies and hardtops. Complete building instructions. New low prices. Nationally known suppliers. Industrial Plastics, 4425 Linden, Oakland 8, Calif.

### AUTO TRAILERS

TRAILERS. Build-it-yourself. Telescoping and conventional models. Slip-on coach for pickups. Campers. Illustrated catalog 10c. Comstock Trailers, 585, Parsons, Kansas.

**EXCEPTIONAL** Expanding eight foot trailer. Accommodates family of five. Build yourself. Literature 10c. Fra-Mar, 3 Jones Ave., Wilmington, Mass.

**TRAILER** Building. Illustrated 10c. Craftsmen Books, Box 1153, Milwaukee 1, Wis.

**BUILD** Your own trailer! Plans for all kinds. Illustrated catalog 10c. Jim Dandy, 125-M, Wausau, Wisconsin.

#### MOTORCYCLES, BICYCLES, MOTORSOONERS AND SUPPLIES

**REBUILT** Gasoline engines \$17.00 to \$37.00 Cauffiel Motor Industries, Temperance, Michigan.

**BUZZZZ** — The motorcycle magazine. Lots pictures. Worldwide coverage. \$2.00 year. Sample 20c. 5424-A Sawyer, Chicago 25.

**MOTORCYCLES** And parts, new and used, early and late models. Bulletin 25c. Harley Davidson, 813 Ohio Street, Wichita Falls, Texas.

**NSU** Motorcycles, motorbikes, 1953 NSU-Lambretta motorscooters. Seven models (100cc-500cc). Fast parts service. Ask for folder. Some dealerships open. Butler & Smith Trading Corp., 117 West 63rd St., Dept. P, New York, N. Y.

**PAINT REMOVER** — Quick-Dip. The fastest dip paint remover on the market. One package of "Quick-Dip" in hot water strips paint on metal surfaces almost instantly. Makes 10 gallons. \$1.50 postage paid or send c.o.d. \$1.50 plus postage. Leonards Products Co., Dept. 300, Marlton, N. J.

**WHIZZER** Motor \$8; Whizzer motorbike \$21; two passenger midget car chassis \$75; homemade midget \$18; Indian motor \$10. Four airplane tires \$3 (mailorder only). Send 25c for catalogue Number 52 just out listing the above and hundreds of other bargains in new and used motorscooters, midget cars, homebuilders parts, plans, etc. (35c by first class mail.) Midget Motors Directory, Athens, Ohio.

**40 RECONDITIONED** Harley-Davidson motorcycles. Large stock of parts and accessories, good chromium parts. Complete motor rebuilding by H-D factory trained men. Bill Thede, The Motorcycle Man, 7577 West Lake Street, River Forest, Illinois.

**HARLEY-Davidsons** — America's best used buys! We pay shipping on motorcycles. Genuine new, used, parts, accessories for current and obsolete models. Send 25c for bulletin, catalog. Knuth's (Harley-Davidson factory dealer) 1753 Muskego, Milwaukee, Wis.

**WHIZZER** \$20; Servicycle (good tires) \$20; motorbike conversion kit \$25; Cushman motorscooter \$25; Harley twin \$25. Rush 25c (35c first class mail) for catalog #954 listing many other amazing bargains in motors, midget cars, motorscooters, motorbikes, construction plans. Associated, Box 1764-CS, Toledo, Ohio.

**U. S. Govt. surplus** "45" Harley-Davidson motors, complete with carburetor and generator, in running condition — \$69.50 f.o.b. Chicago. 25% deposit with order. Parts and accessory catalog 25c. Triangle, 2157 Harrison, Chicago.

**RECONDITIONED** Motorcycles and motors. Chromium accessories. Complete stock Indian parts. Expert rebuilding. Fast service. Indian Motorcycle Sales, Kansas City 27, Mo.

**WHIZZERS** \$20; Midget car \$15; motorscooter belt drive \$6; 3-wheel scooter car \$39.50. Send 25c (35c first class mail) for catalog #23 jammed with sensational bargains in wheels, motors, motorscooters, midget cars, motorscooters, construction plans, etc. Gall, 538 Erie, Toledo, Ohio.

**LEATHER** Jackets—repaired, "free circular." Zip-Jack, 708 East Tremont Avenue, Bronx, New York.

**DOZENS** Of used motorcycles \$95.00 up. Used outboard motors, bike motors, police cycle sirens and radios. Parts for all makes of cycles and outboards. Send 25c for listing to Bill's Motorcycle Shop, 1005 S. State St., Syracuse 3, N. Y.

#### AVIATION

**AMERICAN** Triwing. United States patented ship, featuring safety, simplicity, economy. Plans now available \$10. build and fly your own. Lillian Holden, agent, P.O. Box 1614, Ft. Worth, Texas.

**PRIMARY** Glider plans \$1.00. Literature 15c. McFarland Aircraft, Greenville, Ohio.

**START** Your own aviation business. Details free. Christopher Publications, Holtsville 31, N. Y.

**AIRCRAFT** Engines for wind boats, sleds. Sabina Airport, Sabina, Ohio.

**WAR SURPLUS** catalogue. Send dime—Save dollars! Ort, Thomasville, Penna.

**STARTERS**, Mechanical, for lightplane engines. Approved, inexpensive. Goodrich, 505 Russellwood, McKees Rocks, Penna.

**PROPELLERS**, plans, supplies — For snow sleighs, air boats. Immediate delivery, highest quality. Catalog 25c. Banks-Maxwell, Box 3301E, Ft. Worth, Texas.

**LIGHTPLANE** Circular, illustrated 20c. Craftsmen Books, Box 1153, Milwaukee 1, Wisconsin.

**PROPELLERS**, Plans for snow sleighs, air boats. Lowest prices, fastest service. Literature. Gano Propeller, Box 3284A, Ft. Worth, Texas.

#### BATTERIES, GENERATORS

**EDISON** Nickel odorless storage batteries. 12 to 600 ampere hour. Any voltage. Long guarantee. Literature. Hawley Smith Co., Croton Falls 1, N. Y.

#### ELECTRICAL SUPPLIES

**REVERSING** Switch. Free trial without obligation. Free literature. Send no money with order. U.L. approved. Easily attached to fractional motors, maximum  $\frac{3}{4}$  h.p. After ten days remit \$2.98 or return switch. Best Tools Inc., Dept. P2, Box 92, Berwyn, Ill.

**MOTOR** Rewinding supplies. Magnet-wire, insulation, silicon transformer steel. Morton Electrical Service, Round Lake, Ill.

**FREE** News. Read. See, amazing new low cost Swiss tool. Speeds work. Saves money. Postcard. Steen's, 801 Broadway, Long Branch, N. J.

**ELECTRIC** Clock repairs simple, profitable. Most Telechron-G.E. rotors \$2.15. Sessions, Ingraham, \$2.45. Free parts list. Time Service Company, Dept. P-7, 710 Boush Street, Norfolk, Virginia.

**AMPERE** Demand indicator — (0-20) amperes. Time lagged to respond as heating effect motors and transformers. Thermal type. Two pointers, present average, peak past average. A maintenance shop must. Price \$3.50 each postpaid. No c.o.d.'s. Electro-Devices, Inc., 247 Broadway, Paterson 1, N. J.

**LAMP** Supplies — Wholesale. Any amounts. Prompt shipment on all parts for repairing and building lamps. Illustrated catalog 15c. Brown Lamp Co., Box 501-Wellston Sta., St. Louis 12, Missouri.

**FREE** — War surplus catalog. Bargains galore. Welders, motors, generators, hydraulics, pumps, kits for assembling your own, other items. Save. LeJay Company, Minneapolis, Minnesota.

**LAMPS** — 25c Brings bargain parts catalog containing instructions for electrifying oil lamps, vases, etc. Gyro Lamps, 5402P Clark, Chicago 40.

**ELECTRIC** Pencil: Engraves all metals \$1.50. Beyer Mfg., 10511-H Springfield, Chicago 43.

#### WELDING, SOLDERING, PLATING

"BUILD-UR-Own" a.c. welder and a.c. power plant with a good used engine and low cost Hobart generator. Welds anywhere and supplies 5KW stand-by power for any emergency. Write Hobartweld, Box M-432, Troy, Ohio.

**WELDERS** — Electric, various models, \$28.50 to \$235.00, direct from manufacturer. Free literature. Champion Welder Mfg., 193MP Centre St., New York 13, N. Y.

**ACETYLENE** Welding outfits. New \$49; used \$29. Arcwelders \$49.50. Eagle Welding, Dept. PM, 5085 Broadway, Chicago 40, Ill.

**A.C.** Welders, four sizes, lowest prices. Free literature. Holgerson's Service, Canton 1, Kans.

#### MACHINERY, TOOLS, SUPPLIES

**NEW** Mail drills with Jacobs chucks.  $\frac{1}{4}$ ",  $\frac{1}{2}$ ",  $\frac{3}{4}$ ", \$25; electric saws 5", \$29.95; 7", \$49.50. Wilt Surplus, 7829 S. Racine, Chicago 20, Ill.

**GENEROUS** Supply aluminum tube, bar, extrusion, sheet, \$1.75 p.p. Mechanical Products Company, 511 East Mulberry, Phoenix, Arizona.

**GOOD** Machines for your shop: 20"x8' lathe \$380; Cincinnati #2½ Universal Milling machine, Motor, Drive-All, dividing heads \$1600; Lodge Shiply Q.C. 25"x14" engine lathe Drive-All, motor, chuck \$1900; Lodge Shiply Q.C. 16"x12" engine lathe, Drive-All, motor, chuck \$1200; Hamilton Q.C. 18x6 Drive-All, taper attachment, chuck \$1000; Smith Mills 25" shaper motorized \$1200. Money back if you are not satisfied. Conversion Parts Co., 278 Adams St., Boston 22, Massachusetts.

**GEM** Toolmakers, diemakers indicators Model 222 (.001) \$19.50 or Model 333 (.0005) \$27.50. Sybrandt Company, 4500 Euclid, Cleveland 3, Ohio.

**CONCRETE** Block machines. Standard sizes. Free catalog. Concrete Machine Company, 5129 South Compton, St. Louis 11, Missouri.

**HERE** It is! Your adjustable open end wrench. Takes up to  $\frac{3}{4}$  inch nuts. Cuts work time in half. Only \$4.95. Syco Mfg. Co., Box 9673, Norfolk 5, Va.

**TEN** New 6 inch all aluminum Nail Jointers including table, fence, knives, not including motor, belts, starter \$75 each; ten for \$500 f.o.b. Thomas Hoist Co., 20 So. Hoyne, Chicago 12, Illinois.

**INDISPENSABLE** Screw gage made by Swiss craftsman, 3/32"x2"x5". 20 accurate threaded holes. 1-64 to 1/4-28. Wood screws from #0 to #24. For apprentices, machinists, engineers, home craftsmen. \$3.75. Free details. Faas Research Laboratory, 13-D Dogwood Road, West Orange, New Jersey.

**CONCRETE** Garages, houses, outbuildings, walls built with the Dudley Wall Builder by any one in spare-time. Cheaper. No forms, no problems. Also salesmen wanted. Nancy Mitchell, R. 7, Box 577X, St. Ann 14, Mo.

**ACME** Circular saw sharpeners and Acme hand saw filers for those who want the finest, and by comparison, the least expensive. Machine tool construction; easy and profitable to operate. Send for free literature. Max Mfg. Co., 138 Stockton Avenue, San Jose 26, Calif.

**VERNIER** Height gauges up to 36". Vernier calipers up to 48". Jo-Blocks sets from 17 to 84 pieces. Anything in precision tools, domestic and imported. Krueger's, St. Clair Shores, Michigan.

**HAND** Type tachometer—Stewart Warner. 0-4000 rpm. Two rubber tips. Check power tool speeds, etc. Price \$6.95 each postpaid. No c.o.d.'s. Electro-Devices, Inc., 247 Broadway, Paterson 1, N. J.

**FREE!** Complete catalogs of precision tools for any job. Big stocks — famous brands: Lufkin, Starrett, Brown & Sharpe. Immediate delivery. Wide selection. Write for your copy today! Mid-City Hardware & Supply Company, 318 South Halsted Street, Chicago 6, Illinois.

**SHOP** Tools, factory prices. Write Esco, 2718 W. 8th, Los Angeles.

#### ENGINES, MOTORS, DYNAMOS

**ALTERNATING** Current generators. 750 watt, \$38.50; 5000, \$135. Motors.  $\frac{1}{2}$  horse \$15;  $\frac{3}{4}$ ; \$22; 1, \$35. Butler, 1885 Milwaukee, Chicago 47.

**REBUILT** Gasoline engines \$17.00 to \$37.00. Cauffiel Motor Industries, Temperance, Michigan.

**WINDING** Data, listing 225 motors, single and three phase, \$1.00. Motor Data Co., Box 7631, Kansas City 3, Mo.

#### BOATS, OUTBOARD MOTORS

**NOW** Faster than ever! Champion Boats — the choice of champions now available to you! Easy-to-read plans; easy-to-assemble kits; or easy-to-afford custom built speed boats. (18 models, outboard and inboard). Send 25c today for multicolored, illustrated catalogue. Champion Boats, 1524 W. 15th St., Long Beach, Calif. Dept. 22-D.

**PLYWOOD** Boat plans, twenty for \$1.00. Catalog boat building plans 25c. The Rudder, 15 Murray Street, New York 7.

**MARINE** Conversions. Request deluxe catalog with photographs of our products 25c. Gershel Engineering, Oceanside, N. Y.

**STEERING** Wheels, windshield brackets, from \$7.95. Attractive polished fittings. "Waterskis," aquaplanes, prefabricated boat kits—Complete. Skiffs \$32.00, runabouts \$97.00. Guaranteed satisfaction. Bargains galore. Hundreds accessories. Folder free. Marine, Box 681-M, Mendota, Minnesota.

**PERFECT** Boat coating. Polyester-Fiberglas. Permanent protection. Our new catalog tells you how, and how much. 10c. Airmailed 35c. Gem-O-Lite, Box 6862M, North Hollywood, California.

**MARINE** Conversion parts, most complete line on market. Parts for Ford to Cadillac, manifolds, water pumps, transmission conversions, reverse gears, etc. Barr Marine Products, 2706 Castor Avenue, Philadelphia 34, Penna.

**PERMANENT** Boat protection—Use Castoglas (liquid plastic and glass cloth). Apply it like paint to new or old boats. Forms plastic skin. Lighter than aluminum, tougher than steel. Once on, stays. Makes boats stronger, permanently leak-proof, rot-proof, mildew-proof, weather-proof. Won't rust, corrode, crack. Unaffected by gasoline, oil, alcohol, salt water, hot sun. Also used for sealing leaks, patching, caulking. Free folder. Marine Division, Dept. MD-101, Castolite, Woodstock, Illinois.

**\$59.00 FOR** Complete 12 foot boat kit. Free literature! Penney Woodcraft Industries, Dept. C5, Perry Street, Defiance, Ohio.

**FULL** Size, cut to shape boat patterns, blueprints, 7½-38 feet. Illustrated "Build a Boat" catalog, 25c (coin). "How to Build Boats" book, \$1.00. PolyWog houseboat plans \$10. Marine catalog \$1.00. Cleveland Boat Blueprint Co., 3107 Detroit Ave., Cleveland 13, Ohio.

**BOAT** Patterns, kits. 8'-50'. Descriptive literature and illustrated boat construction book 50c. Marine fittings catalogs 35c postpaid. Germain Boat Company, West Saginaw 3, Michigan.

**JOHNSON** Outboard specialists. Used parts for all models at substantial savings. Prompt quotations. Specify model serial. Crandall-Hicks, 910 Commonwealth, Boston, Mass.

**BUILDING** An inboard speedboat? We manufacture the largest assortment of custom hardware and equipment. Illustrated catalog 25c. I. E. Debbold's Marine Co., Lynwood 7, California.

**BUILD** Marine engines with Federal conversion kits. Federal Marine Motors, 9011 Cottage Grove Ave., Chicago 19, Illinois.

"BELLY Tanks" \$9.95. Free picture. Buck's Auto Wrecking, Merced, California.

**PLANS:** Inboard-outboard runabouts, cruisers, sail. Wood, plywood, welded steel. Advise requirements. John B. Clark, N.A., 329 Kenmore, Bay Village, Ohio.

**OUTBOARD** Motor parts—New, used for all makes. Send stamp for price quotation, listing parts needed. Outboard Motor Mart, Inc., 229A State Street, Boston, Mass.

**NEW**, Used, rebuilt marine motors. Marine conversions, fittings. Free catalog. Stokes Marine Supply, Dept. 24, Coldwater, Michigan.

**MARINE** Conversions for Ford and Jeep engines. Catalog 10c. Lehman Manufacturing Company, 972D Broad Street, Newark 2, New Jersey.

**CURE** That leaking boat with Fiberglass-plastic covering. Ends caulking and painting. Nationally approved process. Complete instructions. New low prices. Industrial Plastics, 3807 Harrison, Oakland 11, California.

## ATHLETIC EQUIPMENT. BODY BUILDING COURSES

12 MUSCLE Courses \$2.00. (Results guaranteed.) Sid's System, Southgate, Calif.

10 MINUTES Daily, new man. 25 world bodybuilders, send dollar. John Wiggin-ton, 1106-1 N. Kerth, Evansville, Ind.

**BARBELL**S. Exercise equipment. Courses. Free booklet. Good Barbell Co., Reading, Penna.

## SPORTING GOODS, GUNS, FISHING TACKLE, ARCHERY, TRAPPING

DIX "Br'er Rabbit Foot Spinner." Genuine rabbit foot, specially treated and designed. Guaranteed. Price \$1.00 postpaid. Dix Fishing Lures, 909 Lysle Blvd., McKeansport, Penna.

**FISHING** Plugs. Write S. R. Blackstone, 344 West Dayton St., Madison 3, Wis.

**POWERFUL**, Accurate, hunting "Sling-Bow" slingshot. Shoots arrows-pellets. Checkered, lifetime gunstock plastic handle. Send card for descriptive catalog sheet. Midstate Supply Co., Dept. 43-P, Owen, Wis.

**LEARN** Gunsmithing! Information, interesting gun. Gunsmith's catalog, 25c. Gunsmith, 3118 Montrose, Chicago, Ill.

**IMPORTED** Knives, write for illustrated literature. J. D. Clinton, Mt. Clemens 2, Mich.

JAP Rifle altering American shells \$6.00. Catalog 5c. TP Shop, West Branch 11, Mich.

64-PAGE Illustrated bargain packed catalog 50c. Westerns, Kentuckies, Indian relics, swords, medals, Luger, Mausers, gunsmithing accessories. Agricamone's, 201 Warburton, Yonkers 2G, N. Y.

**SPECTACULAR** Fish bait formula only 50c. Ward, Westbrook 12, Connecticut.

**FOREIGN** And domestic ammunition. Over 200 calibers. Write your complete needs. Used and new guns. Catalog 10c. Ashton, 1517 Gardner, Hollywood 46, Calif.

**GENUINE** 100% Dupont nylon fishing line, first quality. 1500 ft. 25 lb. test. Ideal for fresh or salt water fishing and trolling. Specially treated for extra long life. Only \$1 prepaid. Bison Surplus, 70 Seneca Street, Buffalo, N. Y.

**SAVE** Money — Load your ammunition. Complete reloading handbook 75c postpaid, with free catalog listing supplies. Precision Gun, Ithaca 19, New York.

NEW 80 Page cartridge catalog and ammunition reference digest. Informative and profusely illustrated plus new 6 page shooter's ammunition list, containing the largest variety of cartridges for obsolete, modern and foreign rifles, shotguns and pistols. Price 50 cents. List sent separately for 3c stamp. Philip Jay Medicus, Dept. 3, 18 Fletcher Street, New York 38, N. Y.

**KITKAST**—Pocket size casting rod \$3.00. Literature. J. H. Meyer, Box 69A, R.D. 3, Stroudsburg, Penna.

**TENTS**, Camping equipment. 100 page free catalogue. Mor-San Sales, 10-21R 10th Avenue, Long Island City 1, New York.

**FISHWORM** Culture — This booklet "Raising Worms for Pleasure or Profit" tells how to fix beds indoors, outdoors; small or commercial scale; what, when, how to feed, water, harvest, package, sell. \$1.00 postpaid. Tennessee Worm Hatchery, Section 4C, Box 265, Nashville 2, Tenn.

**BOWS** And arrows! Raw materials. Send 5c for catalog. Illustrated handbook "How to Make and Shoot Archery Tackle," 75c. Stemmler Co., Dept. 3, Manorville, Long Island, N. Y.

**FISHERMEN** Save money! Startling new bait-catcher stampedes choice nightcrawlers from holes like mad. Send \$1 today for Flushem. Gets 500 fat slow-drowning worms. Make fish drool! Bayou Specialties, 1921 Bayou Grande, St. Petersburg, Fla.

**MOLDS**: Handled and hinged for fishermen to make their own sinkers, jigs, squids and casting or spinning lures. Entertaining and profitable. 400 sizes and styles from \$2.95 up. Special molds made to order. Free catalogue. Sweet's Molds, Tonawanda 1, N. Y.

**CAST** Iron molds—For casting fishermen's sinkers. Free illustrated booklet. Reading Instrument Co., Box 78, Reading, Penna.

120 PROFUSELY Illustrated pages antique pistols, swords, daggers, armor, etc. 50c. Robert Abels, M860 Lexington Ave., New York 21.

**SHOTGUNS**, Rifles, Revolvers, 500 modern, obsolete. Also cartridges. Each list 10c coin. Ed Howe, 52 Main, Coopers Mills, Maine.

5000 **BARGAINS**, Firearms, binoculars, war relics. Catalog 50c. Smith Firearms, Runnemede, N. J.

**SEND** Only \$1.00 (refunded on your first catalog order) for Klein's Giant 1953 "Hunting & Fishing Digest and Bargain Catalog"—worth \$2.00! Klein's, Dept. 103, Chicago 6, Ill.

**BASS-O-LURE** attracts fish to your bait on a money back guarantee! Send only \$1.00 to Bass-O-Lure, Box 345, Van Nuys, California.

## TAXIDERMY

**TAXIDERMY** Supplies, books, instructions. Everything! Catalog 10c. Vandyke's, Wessington Springs 12, S. Dak.

## BINOCULARS, TELESCOPES, MICROSCOPES, MAGNIFIERS

**FREE** Giant optical catalog—New-illustrated. Nassau Optical, 9 W. Greenwich Ave., Roosevelt, L. I., N. Y.

**FREE** 40-Page, 3 color catalog! 67 different models! United Binoculars, 9043 S. Western, Dept. A-5608, Chicago 20.

**WAR SURPLUS** bargains, binoculars, telescopes, sextants, millions of lenses, prisms, reticles, eyepieces, objectives, etc. Mail 10c for big "Catalog CH." Send \$1.00 for Stock CH—10-piece lens kit and big instruction booklet. Edmund Scientific Corp., Barrington, N. J.

**BINOCULARS**, Lowest prices. 8x30, \$30: guaranteed. Free catalog; all sizes. Joe's Binocular Sales, 4827 Second Blvd., Detroit 1, Michigan.

**AMAZING** Prices, binoculars, telescopes, microscopes. Free trial. Folder. "Binocular Selecting," optical catalog free. Prentiss Importers, Mercury Bldg., West Los Angeles 25, Calif.

**BINOCULARS**, Telescopes, microscopes, terrific values, \$3.95 up. Request free, money saving catalog. Criterion, Hartford, Conn., Dept. P9.

**POWERFUL** Astronomical telescopes easily made. Full power, clear vision guaranteed. Complete instructions and lenses for making erector, 45X, 100X, 200X and 400X telescope \$4.00. Suffolk Science Service, Riverhead, N. Y.

**REFLECTING** Telescopes, 60X, completely assembled \$29.75. Guaranteed observatory clearness. Free information. Skyscope, 475 Fifth Avenue, New York 17.

**POWERFUL** Giant telescopes easily made. Lenses, erector, focusing tube and instructions for making 40X, 100X, 200X and 400X telescope \$6.00. Telescopic Company, Manorville, N. Y.

**GIANT** Astronomical telescope complete with 6 ft. tripod. 45X and 100X (10,000 area magnification) eyepieces and sun projector lens. Full power, clear vision guaranteed. \$15.00 f.o.b. factory. Suffolk Science Service, Dept. BT, Riverhead, New York.

**ASTRONOMICAL** Telescopes produce inverted images. Our giant 100 power, complete, ready to use, terrestrial telescope with hardwood tripod produces tremendous, clear, erect images day and night. Helioscope. Extra eyepiece. All for \$12.00 f.o.b. factory. Telescopic Company, Manorville, N. Y.

**MAKE** Your 6" telescope reflector. Glass, abrasives, instructions—\$9.50. F. Cameron, Box 65, Inwood 96, N. Y.

**BUILD** Your own microscope. 200 power. Complete castings, mounts, lenses, screws, instructions. Kit \$14.75. Free illustrations. Esco, 1426 Willow Ave., Hoboken, N. J. Formerly at 911 Willow Ave.

## PETS—DOGS, BIRDS, RABBITS, HAMSTERS, ETC.

**CHINCHILLAS** — Profitable "package starter plan" with purchase 2 more pairs chinchillas. Top, graded, N.C.B.A. stock, unusual guarantees. Free folder. St. Clair Farm, 4564 Eastway Sec C, Toledo 12, Ohio.

**ELECTRIC** Dog trainer. Stops barking, fights, "Housebreaks." Recommended by dog authorities. Harmless to dog, humans. Guaranteed. Details free. Garrahan Company, Box 4747, San Juan 24, Puerto Rico.

**HAMSTERS**—Golden Bear. Selected pets and breeders \$1.25 each. Shipments anywhere. Mineral Springs Hamstery, Clyde, New York.

**GUINEA PIGS**. Best sideline. Free booklet. Taylors, B426A, Hapeville, Georgia.

**SOUTH AMERICAN** chinchillas, N.C.B.A. registered, wholesale prices. Mann Chin-chilla Ranch, 134 Silver St., Greenfield, Mass.

**RABBITS**. Extra money sideline. Booklet free. Tayco Rabbitry, Hapeville, Georgia.

**BIG PROFITS** raising canaries, chinchillas, guinea pigs, hamsters, mink, parakeets, parrots, poultry, rabbits. Amazing new book, "Breeding 100 Pet Animals." Special sections on indoor, outdoor cages, breeding pens, automatic feeder, waterer, aquariums. Over 75 photos, illustrations. Only \$1.98 postpaid (refundable). Ryanco, 437-PM 5 Street, Brooklyn.

**HAMSTERS** Not paying, need buyers? Write Golden Hamstery, Box 604, Edge-water, Cleveland, Ohio.

**ANGORAS**, Chinchillas, White Giants. World's most profitable rabbits! Catalog free. Grinstead's, Edwardsville, Illinois.

**CHOICE** Rabbits and guinea pigs. Prices reasonable. Winfield Harrison, Fitzgerald, Ga.

**RAISE** Rabbits. Start right. See advertisement on page 30. American Rabbit Breeder.

**EARTHWORM** Raising pays worthwhile profits! Illustrated booklet explains raising, feeding, packing, marketing. 25c. Ozark Worm Farm-J., Willow Springs, Mo.

**RAISE** Talking Budgerigars (shell parakeets) for profit and pleasure. 32 page booklet \$1.00. Paul Demby, Box 515, Miami 37, Florida.

**ST. BERNARDS**, Boxers, Hov Kennels, 5136 Cascade Rd. S.E., Grand Rapids 6, Mich.

**GOLDEN** Hamsters. Pedigree stock. Breeders, laboratory or pet stock shipped express anywhere. Price list free. Charles E. Bowser, Smoke Run, Penna. Dept. H.

**STANDARD** Rabbit Journal, B-241-M, Milton, Penna. Year \$1.00, sample dime. beginner's manual 25c.

**HAMSTERS**—Ideal small pets. Information and prices free. Anderson's Hamstery, 35 Oneida, Pontiac, Mich.

**RAISE** Rabbits, cavies, hamsters, chinchillas. Steady income from a profitable industry. Illustrated booklet and magazine 10c. Book—Raising Small Stock and copy of Small Stock Farmer Magazine 25c. All the above and magazine (monthly) for 1 year \$1.00. Address Associated Rabbitries, Holmes Park 35, Missouri.

**HAMSTERS**—Virgin stock; young, \$3.00 pair; fully developed, \$4.00 pair. Adirondack Hamstery, Prospect 2, New York.

**HAMSTERS**—Golden or spotted. Cages and equipment. Free illustrated details. Lakeview Hamster Colony, Newfield, New Jersey.

**BOOKLET** "Treatise on Breeding and Raising Canaries"—\$1.00. Audubon Publishing Co., 3449-PM N. Western, Chicago 18, Illinois.

**MAKE** Big money! Raise Chinchilla rabbits. Cash markets supplied. Write today! Rockhill Ranch, Sellersville 15, Penna.

**MINK** Raising information free. Complete. Lake Superior Mink Farm, Superior, EE1, Wisconsin.

**RAISE** Highly-profitable Angora and New Zealand rabbits. Particulars free. White's Rabbitry, Newark, Ohio.

**YOUNG** Parrots—Make fine talkers. Herb Miller, 1911-N, Lubbock, Texas.

#### PLANTS, SEEDS, NURSERY AND GARDEN SUPPLIES

**SEASHELLS** For rock gardens, ash trays, children to paint. Large, 6 for \$1.00, 15 for \$2.00, medium, 12 for \$1.00 postpaid. Ronald Baxter, 26 Chernucha Ave., Merrick, New York.

**STRAWBERRY**—35 Plants \$1.00. Very hardy Early Premier. Carpenters, Route 2, Piqua, Ohio.

**GLADIOLUS**, Hundred blooming size postpaid \$1.89. Gladhaven, Sebastopol, California.

**GROW** Miniature trees. Details free. "Revealer," Box 37P, New York 53, N. Y.

**TEST** Garden soil yourself. Home testing process. Every type plant requires different elements and fertilizers. Complete booklet, \$1.00. Steiner, 103 McGraw, Ithaca-11, New York.

**GINSENG**, Goldenseal roots bring \$2-\$12 pound. Full information. F. M. Collins, Viola, Iowa.

**TREES** And shrubs—Raise your own from seed for shade, windbreak, snow fence, ornament, erosion control, etc. For free planting guide, price list, write Woodlot Seed Company, Norway 4, Michigan.

#### FARMS, FARM LANDS, REAL ESTATE

**UNITED** Farm Agency's big free spring catalog of farm and country real estate bargains can help you plan soundly for your future security in the country. Good pictures, many states, easy terms, many equipped, feed and growing crops included. For special service, state requirements, desired location. Write for your catalog today, it's free! United Farm Agency, 1408-PM Consumers Bldg., Chicago 4, Ill.

**FLORIDA** Highway estates—\$345. Payable \$15 monthly. Big, beautifully wooded tracts fronting on U. S. highway 231. In famous Panama City pleasure resort area. Finest beaches, fishing, hunting. Winter gardens. Desirable, fast growing community. Free booklet. Wendell Wood, Box 873, Houston, Texas.

**18 ACRES**, Buildings, timber, fertile valley, \$875. Payments \$25. Others. Write today. Mr. Armstrong, Shook 34, Mo.

**FARM & BUSINESS** catalog free! Big new edition. Hundreds of bargains from \$1000 up. Maine to Florida. West's, M-4, Pittsburgh 17, Penna.

**SELLING** Village houses like rent. Gardening, chickens. Perry, Brier Hill, Penna.

**GOVERNMENT** Lands. Information all states twenty-five cents. National Tax Service, 2520A David Stott Bldg., Detroit, Mich.

**5-ACRES** And independence; book. Write for free photo and details. Landcraft-A3, Cole Camp, Mo.

**\$5.00 MONTHLY** Buys 40 acres near town. Price \$200. Free list. Box 425-P, Carthage, Missouri.

**FLORIDA**—Beautiful lake front lots near Ocala National Forest, Lake County. World's best bass fishing, excellent hunting, sportsman paradise. Price: \$295 up—terms \$1.00 down, low monthly payments without interest. Free literature. Blue Lakes Ridge, Box 5, Paisley, Florida.

**HOMESITES** \$400—Convenient payments. California's finest garden section. On Morro Bay's scenic shores. Wonderful fishing, boating, bathing. Fertile soil, softest water, temperate climate, congenial community. Free literature. Richard Otto, Department M, San Luis Obispo, Calif.

**NEW** Strout catalog, just out! Farms, homes, businesses, 31 states, coast-to-coast, over 3200 bargains described. Mailed free. World's largest; 53 years service. Strout Realty, 7-M So. Dearborn St., Chicago 3, Ill.

**VALLEY** Home, fine spring, fruit, 4 cleared farming acres, much timber, \$875 total, \$25 payments. Other fine Ozark lands. Complete information write Mr. Armstrong, Shook 34, Mo.

**CANADIAN** Tax sale lands for two dollars an acre and up. Small monthly payments. Farms, timber, hunting and fishing camps, minerals. Limited number of properties. Write at once for free catalogue. Tax Sale Service, Room 105, 120 Bloor St., W., Toronto 5, Canada.

**FARM-RANCH** opportunities. Favorable conditions. Washington, Minnesota, Montana, Idaho, Oregon, North Dakota. Literature, farm descriptions. Specify which state. J. W. Haw, 119 Northern Pacific Ry., St. Paul 1, Minn.

#### POULTRY, FARM SUPPLIES

**BABY CHICKS**, America's finest, 50 varieties, 8 crossbreeds, bloodtested, sexed or unsexed, low prices. Gorgeous poultry book free. Berry's Farm, Route 12, Clarinda, Iowa.

**KNOW** How to raise poultry for profit. Read Poultry Industry. Every issue packed with helpful hints and practical suggestions. Latest articles on breeding, feeding and management. Subscribe now, 1 year 50c, 3 years \$1.00. U. S. funds or checks payable at a New York or Boston bank. Poultry Industry, Dept. PM, 376 Boylston St., Boston 16, Mass.

**RAISE** Turkeys the new way. Write for free information explaining how to make up to \$3000 in your own backyard. Address—National Turkey Institute, Dept. 3, Columbus, Kansas.

#### PROFITABLE OCCUPATIONS

**START** Floor surfacing machine rental business. Profitable. Man or woman. Home or store. Send \$1.00. "How to Operate," course; where to lease or buy equipment, no down payment. Satisfaction guaranteed. Rader, Box 8456, Kansas City 14, Mo.

**BEKEEKEEPERS**—Our system comb honey production 50c. Glossary of beekeeping terms 50c. United Industries, Box 449, Madison 1, Wis.

**"FROG RAISING!"** Season just starting! Get this year's eggs. New book tells how. Free folder. Broel-A, 1035 Marlborough, Detroit 15, Michigan.

**FREE** Booklet reveals amazing secrets behind 301 new profitable enterprises! Many mailorder! Includes confidential instructions for starting wholesale buying service. Deumann Business Surveys, 85-R Deumann, Kenmore 23, N. Y.

**WANT** A diesel job? New opportunities to increase income. Higher pay. More money. We can help you qualify. Tools. Shop method home training. Write today! Diesel, Tractor, Heavy Equipment Division, Interstate Training Service, Dept. 3D, Portland 13, Oregon.

**OPERATE** Profitable screen printing shop. J. Jones, Box 321, Meridian, Miss.

**SEND** For big, new 1953 illustrated catalog that will show you how to turn your spare time into cash-making quick-selling, highly profitable lamps. Every home a prospect. Hundreds doing it, you can, too. No experience or special tools required. Catalog No. 7 contains 56 pages filled with shades, shade frames, figurines and bases, oil lamp converters, boring compound, and dozens of similar items. Also all kinds of sockets, cords, pipes, harps, finials, bases, and hundreds of other parts—everything you need. Special 8-page section shows 6 beautiful lamps in kit form, ready to assemble. You buy wholesale, sell at retail. Make big profits. Send 25c today for new 1953 catalog and wholesale price list, you'll be glad you did. The 25c will be refunded on your first order. Gearon Co., Dept. 500-B-4, 27 S. Desplaines, Chicago 6, Ill.

**CONSTRUCTION** Job list. Published monthly. \$1.00. Dempster's Construction Scout News, Dept. 268-JZ, Bridgeport, Ill.

**FOREIGN** Employment construction men, building trades, helpers, office men, others, interested in foreign projects. High wages, quarters, transportation. Send \$1 for foreign construction compendium and application forms. Foreign Service Bureau, Dept. PM-4, Metuchen, New Jersey. (Not an employment agency—No fees.)

**\$10,800 PROFITS!** Your own mailorder business! No capital risk! "Success plan" (worth \$2) free! Write today! Treasury, 149 Storer, New Rochelle L-10, New York.

**BUY** Wholesale thousands nationally advertised products at big discount. Free wholesale plan. American Buyers, 628-R Linden, Buffalo, N. Y.

**FOREIGN** Jobs. Contracts underway and soon starting in Africa, South America, Canada, England, Europe, South Pacific, Middle East, Mexico and Alaska. Send \$1.00 for foreign job news, information, application forms, etc. DCS Foreign Job News, Dept. 268-SH, Bridgeport, Ill.

**SEE** For yourself! California offers top pay, best opportunities! \$1.00 brings men wanted ads from biggest Southern California daily's extra-large Sunday edition. Pacific Industrial, Dept. C-2, Box 832, Santa Barbara, Calif.

**OVERSEAS** Jobs. Big pay, transportation expenses. Clerical, professional, mechanical workers. Most all trades. Latest listings airline, construction, manufacturing, oil, steamship companies, government agencies, many other opportunities. Up to date information on securing employment, contracts, income tax, application forms. \$1.00. Overseas Jobs, Box 335-A8, Baton Rouge, La.

**\$1200.00 TO \$1500.00** Are the monthly wages of truck drivers, crafts, and clerical now being hired for foreign work. For full information and complete foreign listings, \$1.00. Also domestic listings, \$1.00. Construction Workers Service, 1111 Commerce Bldg. (PM-3), St. Paul, Minn.

**PLASTIC** Engraving, carving machine, Dupliscaler. Profits to \$5 hour engraving plastics. Details, sample 25c. Desco Distributors, 6334-P Sepulveda, Van Nuys, Calif.

**LEARN** Cartooning at home, for fun and profit. Send for free details. Mailorder Mart, Box 5067-M, Nashville 6, Tenn.

**SENSATIONAL**. New! Make exquisite "ceramics" costume jewelry. From marine and botanical life. Gardenia, pansies, starfish, seahorse, etc. Write Julum, Box 460, Ft. Lauderdale, Florida.

**MAKE**, Sell exquisite artificial flowers, woodfibre corsages, chenille novelties, dolls, costume jewelry, leathercrafts. Complete supplies, beginners kits. Wholesales catalog 10c. Profitkrafts, 4509T272 Lorain, Cleveland 2, Ohio.

**NORTHERN** California help wanted columns airmailed \$1.00. Moore's, P.O. Box 55, Placerville, Calif.

**MERCHANT** Marine opportunities! Free details. Seaways, Box 1231M, Baltimore 3, Maryland.

**SO** You want to raise frogs. Send 25c in coin for booklet on information telling how you can get in business. Lee's Frog Hatchery, Box 24, Casitas Springs, Ventura, California.

**FORTUNES** In mail orders. Details 10c. Island, 242-16 89 Ave., Bellrose 26, N. Y.

**BEES**. 3 Lb. pkg. with queen. \$6.00 plus postage. Foster, 711 Boyer Circle, Davis, California.

**\$35.00 OR** More weekly. Upholstering spare time. Complete instructions 50c. Custom Upholstering, Oxford, Penna.

**WELDING** Pays \$\$. Learn easily at best equipped school in country. Non-profit school with low cost training. G.I. approved. Write Hobart Trade School, Box M-433, Troy, Ohio.

**RAISE** Pheasants on \$100 week plan. Little capital and space can make you independent. Free details. Great Central System, Columbus 1, Kansas.

**MUSHROOMS** Grown boxes, barrels. Manureless process 50c. Spawn \$1.00. Gordons, 553 William, Winnipeg, Manitoba.

**PROSPECT** For profit, fun and health. Industrial minerals, uranium, tungsten, metals. Free literature tells how, write today! Stratex Instruments, 1861M Hillhurst, Los Angeles 27.

**SELL** Popular Mechanics and all other magazine subscriptions. Free catalogue, supplies. Subscription Service Company, Dept. B, P.O. Box 2070, Birmingham, Ala.

**TYPISTS** — Profitable home business. Complete copyrighted information, 50c. Gaunt, 827-A Irving Park, Chicago 13, Ill.

**FROG**, Fish, raising profitable. Information, 25c. Vol Brashears, Berryville, Ark.

**GOVERNMENT** Jobs. Thousands of openings at home and abroad. Latest published lists \$1.00. Disque, Box 7108, Apex Station, Washington, D. C.

**ALASKA!** Last American frontier. \$1.00 brings 1953 business directory and government map. Military and civilian construction; homestead and highway facts; mining, aviation, fur farming, grazing, timber, travel directions. List of firms hiring. How to apply. Alaska Opportunist, Box 92, Hollywood 28, Calif.

**FLAGPOLE** And smokestack painting. Perfect part time trades. Details free. Skyline Co., Fairchance 1, Penna.

**ALASKAN** Jobs! Over 100 new construction contracts with names, addresses companies hiring. Thousands needed. Highest wages. Military, private construction, mining, fishing, lumbering, aviation, railroads, homesteading. Skilled, unskilled workers. Accurate information. Government map included. \$1.00 complete. Alaskan Opportunities (PM), Box 362, Kenmore, Washington.

**JOIN** The Merchant Marine. Excellent pay. Foreign traveling. Free details. Davenport's, 1170-A4 Broadway, New York 1.

**FOREIGN** And Latin American employment. 1953 "Foreign Service Directory" gives up-to-minute facts on military and civilian construction, government jobs, major oil listings, aviation, transportation, steamship lines, mining, importers, exporters, how-when-where to apply, application forms, hot list firms hiring. \$1.00 postpaid. Global Reports, Box 883-P, Hollywood 28, Calif.

**GROW** Mushrooms. Cellar, shed, and outdoors. Spare, full time, year round. We pay \$3.50 lb. We paid Habbitt \$4,165 in few weeks. Free book. Washington Mushroom Ind., Dept. 99, 2954 Admiral Way, Seattle, Wash.

**MEN—WOMEN**. "Everybody likes candy." Learn to make professionally. Tools and supplies. (Our 42nd. year.) Ragsdale Candies, D6, East Orange, New Jersey.

**MAKE** Flexible molds! Cast plaques, bookends, figurines! Free sample! H. Tooker, 630-M Chestnut, Hamilton, Ohio.

**BE** The Popular Mechanics representative in your neighborhood and earn big profits in your spare time. Write Popular Mechanics Magazine, Room 408M, 200 E. Ontario St., Chicago, Ill.

**FREE** Book "505 Odd, Successful Businesses." Work home. Expect something odd! Pacific, Oceanside, Calif.

\$40.00 WEEKLY. Made growing mushrooms. Dominion patent 331,583. Free spawn with order. North American, 169P Yonge, Toronto, Canada.

### BOOKS, PERIODICALS, PICTURES, POSTCARDS

**LEARN** How to rebind books—Simplified course and materials to bind one book, \$1.50 postpaid. Modern Binding Corp., Dept. A, Portland, Indiana.

**BOOKS** Located. Any kind—Any language. Send your want list to William Rittenour, Bookseller, 2827 Overlook Drive, Huntington 3, West Virginia.

1000 NEW Fiction and non-fiction books, 75c ea.; per 100, \$55.00. Entire lot 45c ea. Joe's, P.O. 378, Wooddale, Ill.

**NEW** Book bargains. All subjects. Send dime. Mack Vallon, 63 Perry, New York 14, N. Y.

**FREE** Sample copy of favorite magazine of motorcyclists everywhere. Cycle. Action-packed event stories on all popular makes plus racing, performance tips and secrets from cycle experts. Contains photos galore of this exciting, fast-growing sport. Send request to Paul Anderson, Cycle Magazine, 5959 Hollywood Blvd., Los Angeles 28, Calif.

**BOOKS** Of every description, including hobby, handicraft novelties, literature 10c. Rothleder, "102 PM" Cathedral Station, New York 25.

**BOOKHUNTERS!** All subjects. Send wants! Jaher Book Service, 620-P East 178 Street, New York 57.

**BOOK** "Breeding of Parakeets" and cage-bird magazine—\$1.00. Audubon Publishing Co., 3449-PM N. Western, Chicago 18, Illinois.

**BOOKHUNTERS!** Scarce, unusual, miscellaneous books supplied. Atlantic Book Service, Lawrence Avenue, Charlestown 29, Massachusetts.

**SPARETIME** Profits taking subscriptions, all magazines. Wholesale catalog free. Cassell Agency, Westfield 2, New Jersey.

**BOOKS**, Self help, instructional. Many mint editions, collectors items. Free list. Mutual, Section 2, Wilhoit Building, Springfield, Missouri.

**NATIONAL** Geographic Magazines, 1888-1952. Periodical Service, Box 465-PM, Wilmington, Delaware.

**FREE** Giant Popular Mechanics 40 page Golden Anniversary Book Catalog! Over 400 books. Workshop planning. Home building. Household repairs. Projects. Motoring. Sports. Photography. Money-making opportunities. Machinery, inventions. Crafts. Hundreds more. Many not available in stores. Send postcard today. Popular Mechanics Press, Dept. 110, 200 E. Ontario, Chicago 11, Ill.

### GAMES, TOYS, NOVELTIES

**MAGIC** Picture card. Fun, magic, mystery for boys, girls, adults. Send quarter for sample. Dollar brings five cards. Request agents prices. Mandel, 1200 Avenue H, Brooklyn 30, New York.

**CURIOS** Instructive book on chance and games. Free trick each order. Satisfaction or refund. \$1.00. Partridge, 504 Raymond, Santa Monica, Calif.

### MAGIC TRICKS, PUZZLES, JOKER NOVELTIES

**JOKER'S** Novelties. Send 10c for new list and free joke item. Garden City Fun Shop, 654 Franklin Ave., Garden City, N.Y.

**FREE** Magic vanisher with illustrated catalog 25c. Maj Magic, 23 Friends Lane, Westbury, N. Y.

**YAKITY** Yak talking teeth. Barrel of laughs. Imitate family gossips. \$1.25 postpaid. No c.o.d. Shore Sales, 1314 4th, Asbury Park, N. J.

"I Bet You" tricks and stunts 25c. Geyhart, 1113PM Gates St., Aurora, Ill.

**MAGIC**—Parlor, stage. Joker's supplies. Lower prices. Giant catalog 25c. (Refund-ed). Top Hat Magic, Evanston, Illinois.

**BIG** Money selling tricks—magic. Send 25c for wholesale catalog. Magic, Box 2929, Odessa, Texas.

**FREE** Catalog! Magic tricks, jokes. Kardel, 209 Bower, Santa Fe, New Mexico.

**JUMBO**—Catalogue! Tricks! Puzzles! Funmakers! 10c Andersen's, 6815P Ardmore, Chicago 31.

**SPECIAL** Magic offer. Particulars free. Marean Magic Shop, Hopewell, Virginia.

**PROFESSIONAL** Catalog, 150 pages, 25c. Williams, 900 Plymouth, Ellwood City, Penna.

**GENUINE** Wooden nickels, trick and magic catalog, all for 35c. Fun 'n Magic, 511-P North St. Marys, San Antonio 5, Texas.

**BE** A magician. Everything furnished. Earn money. Have hobby. Write, Marsh's, 237 W. 11th Ave., Columbus, Ohio.

**VENTRILLOQUISM** Selftaught. My quick, easy instructions, 25c. "Ventriloquist," CalAllen, Texas.

**FOR** The most amazing values in magic ever offered, send name and address to Ecomagic, Box 494, Detroit 31, Michigan.

**500 TRICKS**. Douglas famous 120-page catalog, only 10c. Fastest service to magicians for 30 years. Send 10c today. Doug's Magicland, Dept. 1, Dallas, Texas.

2500 TRICK Catalogue (512-pages), pocket, parlor, stage. World's finest magic. Catalogue \$2.00 (dollar trick included free). Kanter's, M-1311 Walnut, Philadelphia 7.

200 ELECTRIC Stunts, 110 volts, \$1.00. Kutting Sons, Los Altos, Calif.

WE Supply every noted magician. Large professional catalog \$1.25. Holdens, P-220 West 42nd Street, New York.

**FREE** Trick and large illustrated catalog 35c. Lerro Magic, 8111 Fifth Avenue, Brooklyn 9, N. Y.

**BIG** Fun kit! Tricks, jokes, novelties, books. Real gay stuff. Howls galore. \$1.00. Johnson, 414 McRae, Wilmington, N. C.

**PROFESSIONAL** Catalog and free trick 35c. Terry's Magic Studio, 1921 66th Street, Brooklyn 4, New York.

**VANISHING** Key trick and catalog. 35c. Stirling Magic, Royal Oak, Mich.

### STAMP COLLECTING

**LARGE** Stamps, small stamps, birds, triangles, flowers, famous and infamous rulers, natural and multicolored stamps, stamps with a geographical and historical background, famous buildings and places. These and over a hundred others only 50c to introduce our superb approvals. Just think, less than 1/3 cent per stamp for this lovely and beautiful collection. Satisfaction guaranteed. Wolverine Stamp Service, Dept. C-2, Fruitport, Michigan.

**UNBEATABLE!** Nauru, Brunei, Cayman, Nyasaland, Liberia, Sarawak, Borneo, over 100 different. Everything 10c with approvals. Albert Ftacek, Route 1-P, Ottawa, Ill.

**GIGANTIC** Collection free. Includes triangles, early United States, animals, commemoratives, British Colonies, high value pictorials, etc. Complete collection plus big illustrated magazine all free. Send 5c for postage. Gray Stamp Company, Dept. PM, Toronto, Canada.

**FREE**: 32 Different British war propaganda label set spectacular action pictures of tanks and ships to approval applicants. J. C. Stamp Company, Hurley, Wisconsin.

**RAILROAD** Centenary. Complete Swiss set of four. Only 25c with other interesting complete sets on approval. LeRoy Stamps, 645 W. 2nd, Winston-Salem, N. C.

**PENNY** Approvals—Also advanced material. "Sunny," 1267 Tutwiler, Memphis 7, Tenn.

125 DIFFERENT United States, \$1.00. Approvals. Utechts, 1143D North Keeler, Chicago 51.

**MINT**, Unused United States approvals. Patrick Agencies, 3650 Central, Indianapolis 5, Indiana.

**PICTORIALS** On approval. 100 airmails \$1.50. Herget, Kensington, Buffalo 15, N. Y.

**WANT** Better U. S. on approval? Write New-Way Stamp, Lawrence, Mass.

**PHANTOM** Plane airmails, big beautiful stamps, authentic flown copies from French West Africa (C12-14). Only 25c, with free packet stamps from 50 different countries. References appreciated for interesting approvals. Modern Stamp Co., Dept. A-2, Ferrysburg, Michigan.

**GENUINE** Bargain. 100 different stamps, 25c. Williams Stamps, Box 187, Toronto 1, Canada.

**UNITED** States stamps! Bargains! Sullivan, 127-F East 4th, St. Paul 1, Minn.

\$2-\$5. USED Presidencies, 60c with illustrated U. S. price list. Adelphia Stamps, 902 Filbert, Philadelphia, Penna.

**TWO** Mint pictorial sets: San Marino, Vatican, 5c. Request approvals. Silas Stamps, Box 55-X, Triborough Station, New York 35, N. Y.

**WOW!** 203 All different Germany 15c! Zeppelins, semipostals, airmails, high values, etc. to new customers. Jamestown Stamp, Jamestown 512, New York.

**SENSATIONAL** Guaranteed bargains! 1,000 different colorful, attractive mounted stamps. 1 and 2c each. Rushed immediately. Niagara Stamps, Niagara-on-the-Lake 71, Canada.

**NEED** Higher wages? Not when buying our stamps. Try our books of 1000 at 1c and 2c each, or economy U. S. approvals. Clark Stamp Co., Dept. P-6, Muskegon Heights, Mich.

**FIFTY** Soain 5c. Approvals. Ione Peterson, Route One, Fulton, N. Y.

**FREE** Complete set of famous Americans, flags, parks and presidential approvals to approval buyers. Send 3c for 15 of the above stamps plus full particulars. Triboro Stamp Company, 145 Nassau Street, Dept. 104, New York 38, N. Y.

**POSTWAR** Choice commemoratives. 100 American, 50c; 100 Italy, 80c. Postage extra. Giannini, 911 Florida, San Francisco 10, Calif.

**110 UNCOMMON** Stamps \$1.00. Returnable. Allen, 211 Elmwood, Medina, Ohio.

**MY** Famous 200 different packet, 25c. No approvals unless requested. Charles Albert Selfert, Box 1672, Reading, Pennsylvania.

**HOW** Many of your album pages need only a few stamps to complete? Want to fill those pages? Try our big approval books of 1,000 varieties at 1c and 2c each. Our values will amaze you. Write today. References appreciated. Roseland Stamp Co., Dept. 10-B, Spring Lake, Michigan.

**10 MINT** Pictorial sets, 50c. Approvals. Hotchkiss Stamps, Montpelier, Vermont.

**DEALERS.** Also part time. Send for free samples, printed philatelic forms. Thiese, 9320 San Juan Ave., South Gate, Calif.

**MACAO,** Azores and 50 different worldwide stamps, 20c. Scarce approvals. Wendt, Troy, New Hampshire.

**FREE!** Ecuador stamp cataloging \$1.50, to new approval applicants. Moumblow, Box 278E, East Northport, N. Y.

**FREE** To approval applicants—Israeli, British, French Colonies, Latin American, U. S. packet. Hobbies, 1463 Drexel, Miami Beach 39, Florida.

**FREE:** Mint British Colonies from Tonga, Seychelles, Brunei, Transjordan, Sarawak, Solomon Islands, Caymans, Gilbert Ellice. Free with approvals. Viking, 130-Z Clinton St., Brooklyn, N. Y.

**PROTECTIVE** Mounts protect stamps, beautify collections. Send 35c for package U. S. large comm. size. A. L. McClellan, 2711 Oak St., Shreveport, Louisiana.

**LION** Triangle, elephant, 28 others. 3c. K & S, 303 Clinton, Newark, New Jersey.

**TRADE** 100 Stamps from my private collection 10c. Richard Ledin, Isle, Minnesota.

**25 DIFFERENT** Unused China 5c. Approvals. Sasamco, 125 Dewbourne, Toronto 10, Canada.

**50 CANADIAN** And Newfoundland 25c. Quality. 914 Ossington, Toronto, Canada.

**FINE** Approvals. Fast, personal service. What countries do you prefer? I'll send their stamps. Skinner, 438 Locust, Long Beach 12, California.

**OPPORTUNITY!** Gorgeous lot, triangles, diamonds, giants, midgets, flags, airmails, railroad stamps. Also Guiana, Djibouti, Angola, New Caledonia, etc. Everything only 10c to approval applicants. Evdene, Valley Stream 8, N. Y.

**100 DIFFERENT** United States 25c. 100 different United States commemoratives \$1.00, 2000 different foreign \$2.50; 3000, \$5.00. Claud Denney, 3633 Colonial, Dallas 15, Texas.

**U. S.** Commemorative plate number blocks are scarce! Start your collection now. Six different only \$1.00 with approvals. Wm. Kuehl, 3125 East K, Tacoma 4, Wash.

**UNITED** States, 58 different including 8 airmails, 15 commemoratives, 10c. Approvals. Sunset, Dept. 101-S, Box 47, South Gate, Calif.

**25 BRITISH** Colonies 10c. Completely illustrated pictorial folders. Beautiful bi-colored mint stamps. Real bargains. Special discounts. Many free sets. Stoll Stamp Service, 2632 Burnett, Louisville 10, Ky.

**500 MIXED** Stamps and surprise packet for 20c with approvals. Fahsing, Dept. PM, Atascadero, California.

**HANDSOME** New Zealand semipostal triangles picturing British princesses only 10c to approval applicants. George Richie, 1539 Sixth, Alameda, Calif.

**FINE** Mint set with approvals, 3c. Burgett Stamps, Lima, Ohio.

**FREE**, Greek airmail set with approvals. Stanley Bazan, 801 Literary Road, Cleveland 13, Ohio.

**SORT** And save—Approvals ½c up. Dimond, 3152 Cuthbert, Oakland 2, Calif.

**GERMANY**, Postwar West-Russian zones 27 mint beauties 10c. Approvals. William Deems, Ravenswood, West Virginia.

**25 U. S. Sc.** Approvals. W. Milnes, 27 Becker, Manton 9, Rhode Island.

**FREE** Beautiful Congo flower set. Approvals accompanied. Personal, friendly attention. Pearl, 765 Carl, New Kensington, Penna.

**AMAZING** Offer! Shoebox full of stamps \$3.00. Nelson Exchange, Rye, N. Y.

**AFRICAN** Beauties—Savages, exotic lands, "queer countries." Everything 3c with approvals! Saxon, Vista, California.

**50 DIFFERENT** Worldwide 3c! Approvals. Vinny Jo, Box 3062, Seattle 14, Wash.

"GOYA Nude" set (worth 55c) 15c with approvals. Royal Stamp Company, Tamqua, Penna.

**FRENCH** Colonies, 25 different 5c with approvals. Adlez, 367 Park Ave., Newark 7, N. J.

**FLAGS** Complete mint and cipex, both \$1.00. Want lists. Cooper, Box 44, Quincy 69, Mass.

**SPECIAL:** 200 Diff. Bulgaria \$1.00. Bargain approvals if requested. Emil Auer, Buffalo 10, N. Y.

**WONDERFUL** Offer—7 complete mint sets only 10c with approvals. Reich (M26), 4647 Kenmore, Chicago 40.

**CIPEX** Souvenir sheet plus 25 different U. S., 10c. Approvals accompany. Village Stamps, 90-39P 214 St., Queens Village 28, N. Y.

**GERMANY** Greater 200 different 25c: 500, \$1.00; 1000, \$3.00. Fagan, Box 929, Milwaukee 1, Wisconsin.

**850 MIXED** U. S. old, new, 25c. Lists. Weatherby, Medina, Ohio.

**65 ALL** Different U. S. stamps includes 19 Century, commemoratives, airmails and \$5.00 stamp. Only 10c. Approvals. Willlett Co., Box 511-L, Port Chester, N. Y.

**204 DIFFERENT**, Including triangle set; souvenir sheet, 10c with approvals. Brooks, 2352W East 23rd Street, Brooklyn 29, N. Y.

**UNITED** States approvals. Select copies. Used, mint. Kingsbury, So. Woodbury 2, Vermont.

**U. S.** Washington bicentennial set, complete, 25c. Approvals. Brooks, 2352 East 23rd Street, Brooklyn 29, New York.

**½c APPROVALS**. Povilauskas, 212 E. 3 St., New York 9, N. Y.

**FREE** List foreign sets singles. Earl, Box 1715, St. Louis 2, Mo.

**YOUR Name** in gold on 54 pocket stamp stock book only 15c to new customers for approval service. Nonie Green, 322 W. Twohig, San Angelo, Texas.

**FREE** Perforation gauge. Approvals accompany. Lancaster Stamp Co., Lancaster, Penna.

**SENSATIONAL!** Set each Honduras, Martinique, Guadeloupe, Guiana, also \$2,000,000 stamp. Brunei, over 100 different others. Everything 10c with approvals. Whitehead, 315P South 5th Ave., Canton, Illinois.

**BARGAINS Galore!** Bulk mixtures, kiloware, packets—Illustrated catalog, 3c postage. Tower, 1714 South Ashland, Chicago 8.

**FREE Sets!** Valued at 30c. Send 3c postage. Campress, Manchester, Conn.

**FREE "Stamp Finder."** Tells instantly country to which any stamp belongs. 32 pages profusely illustrated. Garcelon, Calais 17, Maine.

**50 DIFFERENT** World-wide absolutely free, just to introduce our incomparable approvals. Kent Stamp Service, GPO Box 87, Brooklyn, N. Y.

**50 YEAR** Old collection—U. S. classics, 15 selected old-timers each 50 or more years old—Most of 'em missing in even the biggest collections! Get all 15 of these unusual classics for less than 1c each. All yours for just 10c! With your request for approvals. Jaro Stamp Co., Box 246-G Church St. Annex, New York 8.

**50 DIFFERENT** Beautiful Latin American airmails only 30c to approval applicants. Johnson, Box 367, Morgan Hill, Calif.

**18 VALUE** Greece pictorial set. Free to approval buyers. Pleasure Stamps, 1865P-52nd, Brooklyn 4, N. Y.

**\$2.00 CLEARANCE** Lots. Wholesale. U. S. or foreign. Satisfaction guaranteed. Beacon Sales, Maynard, Mass.

**EASTER Flowers**—Stamps that bloom! Bargain price, order soon. 10c. Scout Stamps, No. Weare, N. H.

**U. S. Army and Navy heroes** on stamps: 10c with United States approvals. Locust, Box 509-T, Ossining, N. Y.

**SENSATIONAL** Illustrated U. S. and Confederate states catalogue free. Stone, 45-P Bromfield, Boston 8, Mass.

**250 STAMP** Hinges and 20 different Japan free with approvals. Jaydee, 218 Dickinson S.W., Grand Rapids 7, Mich.

**NEW** Sensational all nation stamp finder-dictionary, 15c to approval buyers. Noel Stamps, 3916P W. 26th, Chicago 23, Ill.

**100 COLORFUL** French Colonies, 20c with approvals. Fred Pittsley, South Montgomery, Napa, Calif.

**UNITED** States, 67 different 10c. Approvals. Kem, Dept. 20, 670 W. Florence, Los Angeles 44, Calif.

**1000 DIFFERENT** World-wide stamps \$1. No approvals. Longbrake, 5976 Gifford, Cleveland 9, Ohio.

**PAY Less**—Get more. Packets by country or subject. Mammoth list free. Introductory special, 100 different Canada 39c. Econostamps, Box 168, Riverside 9, Calif.

**BETTER** Grade U.S. or foreign approvals. Ocean Stamp Co., Box 64-M, Brooklyn 29, N. Y.

**PENNY** Approvals that satisfy. Robert Moed, 245 Kosciusko St., Brooklyn 21, N. Y.

**1000 FOREIGN** Stamps off paper \$1.00. 5000, \$4.00. Anderson, Box 855, Mountain Home, Tennessee.

**MYSTERY** Stamp packet 25c with approvals. Herget, Kensington, Buffalo 15, N. Y.

**100 DIFFERENT** 10c With penny approvals. Stamp Manor, 143 Suffolk, Buffalo 15, N. Y.

**MINT** King George Coronations from 5 different British Colonies only 10c with approvals. Walter Welles, Box 1246-R, Church St. Station, New York City 8.

**1000 MIXED** United States. Guarantee 170 varieties. \$1.05 insured. Quaintance, Box 178F, Upper Sandusky, Ohio.

**UNITED** States price list free. James Cunningham, 101C Terrace, Hasbrouck Heights, N. J.

**96 PAGE** Illustrated U. S. price list free. James, Louisville Trust Bldg., Louisville 2, Ky.

**PRIZE** Contest! Everybody wins! 10c brings premium, approvals, entry blank. Seminole Stamps, Box 1138-P, Coral Gables, Florida.

**50%-75% DISCOUNTS!** Approvals from 33 collection—½c up! Schur, Box 245, Buffalo 12, N. Y.

**AMAZING** Offer! 200 United States stamps—including commemoratives, airmails, high denominations to \$5.00, only 10c to approval applicants! Illustrated bargain lists free. Mystic Stamp Co., Dept. 80, Camden, New York.

**200 DIFFERENT**, Triangle, airmail, pictorials, etc.; 10c. Carlton's, Tujunga, Calif.

**OLD** U. S. on approval. Low prices. MacG., 2905 Observatory, Cincinnati 8, Ohio.

**VALUABLE** Airmail book plus gorgeous world-wide airmail collection 10c. Includes \$10,000 stamp, zeppelin, scarce triangle, many others with beautifully illustrated book, only 10c with choice approvals and bargain lists. Jamestown Stamp Co., Jamestown 708, New York.

**200 EXOTIC** Japan stamp—10c. Kenmore, Milford K57, N. H.

**FREE!** Powerful magnifying glass for 5c post. Bargain lists and approvals. Jamestown Stamp Co., Dept. 207, Jamestown, New York.

**NUDES** Set; colorful approvals—10c! Atlas, 2830-M Eisenhower, Racine, Wis.

**GREAT** Free offer—Weird mosquito stamp, thrilling bicycle race, gorgeous orchid, colorful native drummer, gigantic diamond airmail, stamp albums, all to our approval buyers. Bell Stamp Service, Dept. S-4, Bell, California.

**300 STAMPS** For only 10c.—This mammoth value includes airmails, pictorials; stamps from strange countries cataloguing up to 25c each! Also approvals. Mystic Stamp Company, Camden 80, New York.

**FLAG** Stamp—Free with hygrade U. S. approvals. Wenigman, 1933 Patterson, Chicago 13.

**200 DIFFERENT** Including Roosevelt triangle, 5c to approval applicants. M. Avalon Stamp Company, Springfield, Mass.

**STAMPS** Wanted. Collections, duplicates, surplus stock, mint and used. Good grades only. Buy outright if bargain. What have you? Write us details. Vanroy Shirk, Lebanon, Penna.

**1/2-1-2c APPROVALS.** Bargains galore! Cole, 43A Rinewalt, Buffalo 21, N. Y.

**FREE** Sample—Interesting, informative, illustrated! National Stamp News, Anderson, South Carolina.

**POLAR** Bear triangle, giant George Washington, six colored Ecuador, Arctic triangle, first American commemorative, Corsica, Devils Island, others. Everything free with approvals. Capital Stamps, Little Rock 2, Ark.

**FREE**—Illustrated catalog! Kenmore, Milford, C-57, N. H.

**FREE**. Scott's International Album. Other big premiums. Full particulars with approvals. Raymax, 68-Z Nassau St., New York 38.

**100 DIFFERENT** Spain 25c. Penny approvals included. Reed, Box 980, Chicago 90, Ill.

**81 MULTI-Colored** flags of the world; only 15c. Kenmore, Milford F-57, N. H.

**WORLD'S Largest** stamp ( $7\frac{1}{2} \times 14$  inches). A real curiosity! Retails for 50c, only 3c to approval applicants. Tatham Stamp Co., Springfield 30, Mass.

**OLD Scarce U.S.** seconds on approvals. Slight imperfections, lowest prices. Hernfield, Clintonhill Sta., Newark 8, N. J.

**FREE Bahawalpur** jubilee set with approvals. Lighthouse, Box 1516B, Colorado Springs, Colorado.

**GIVEN Free**—U. S. \$1.00 Presidential plus German peace issues. Write Bala Stamps, Bala Cynwyd, Penna.

**FREE**—Italy pictorial set of 15 stamps to approval applicants. (We pay return postage). Frank Newman, 3539 Hartford St., St. Louis 18, Mo.

**TRIANGLES**, Airmails, bicolors. U.S.A. stamp centenary, fascism downfall, Columbus, Trieste fair, Garibaldi's escape, palaces, fortresses. Only 3c to approval buyers. Fortune Stamp Company, Dept. 1, Washington 10, D. C.

**50 DIFFERENT U.S.** 5c. Price lists included. Bookman, Maplewood 2, N. J.

**UNITED States**—40 different 10c; 40 different commemoratives 25c. No approvals. Seidenberg, Appleton 944, Wis.

**327 DIFFERENT** Stamps 25c! Including early Canada, Newfoundland, British Colonies, Vatican, Red Russia, Hitler heads, Indian states, animals, airmails, French Colonies, rarities, unusuals. Every stamp different. Rare bargain only 25c with our bargain approvals. Money back guarantee. Niagara Stamp Co., Niagara-on-the-Lake 61, Canada.

**50 DIFF.** Finland 10c with approvals. Carroll's, E. 1817-A Sprague, Spokane, Wash.

**FREE** Stamp zoo! Rhinoceros, snake, giant, pygmy, emu, kangaroos, koala bear, kookaburra and other wild animals. Free with exciting approvals. Niagara Stamp Co., Niagara-on-the-Lake 51, Canada.

**50,000 STAMP** Grabbags 25c each. Anderson, 630B Bingaman, Reading, Penna.

**500 MIXED U. S.** airs, coils, etc., 20c. Sibley, Mendon, Mass.

### COINS, TOKENS, CURRENCY

**WHAT** Are your coins worth? Amazing Fell's new 1953 United States coin book. Everything on every single coin minted—Worth, value, how to sell, speculating, investment; other valuable facts. Cloth-bound. 150 illustrations. Send no money. Pay postman only \$1.50 (plus postage) or \$1.50 postpaid (refundable). Order now! Fell Publishers, 386-M-11 4th Ave., New York City 16.

**OLD Money wanted.** Will pay fifty dollars for nickel of 1913 with Liberty head (not buffalo). We pay cash premiums for all rare coins. Send 4c for large coin folder. May mean much profit to you. Numismatic Co., Dept. 20, Fort Worth, Texas.

**SELL** Rare 1853 French coin. Description. Write M. Anderson, Rt. 2, Box 1339, Junction City, Ore.

**PENNIES** Wanted! \$50.00 paid for certain Indianheads. Certain Lincoln pennies \$10.00. Send dime for illustrated folder listing coins wanted and prices paid. J. Martin & Sons, Box P-141, South Bend, Indiana.

**HIGHEST** Prices paid for U. S. coins, illustrated catalog 35c. Robert Zurcher, Route 1, Box 51, Hillsboro, Oregon.

**\$10.00 EACH** For certain Lincoln pennies, Indian heads \$50.00. Send dime for booklet listing prices paid. Lincoln Coin Company, D-529, Glendale, Arizona.

**AMAZING** Grabbag! \$3.50. Foreign grabbag \$2.50! 10 Indianheads 50c. List 10c. Fairway Company, Rye, N. Y.

**66 COINS** And bills, \$1.00. Oddehon, Box 482, St. Louis, Mo.

**COIN** Collector's greatest bargain, huge monthly magazine, wooden nickel, foreign money 20c. Lawrence Brothers, Anamosa, Iowa.

**TWO U. S.** large cents, different dates. \$1. Five for \$2. Four Indianhead cents 25c. Delmaco, Box 1123, Wilmington, Dela.

**BARGAINS** At auctions. \$50,000 sold monthly. Free catalog. Hollinbeck Coin, Des Moines, Iowa.

**COIN** Collector's Magazine. Largest independent, over 1000 pages per year. Sample copy 30c; \$3.00 per year. Hewitt, 7320-J Milwaukee Ave., Chicago 31.

**FREE!** Foreign coin, banknote and coin collectors illustrated catalog to approval service applicants. Send 3c postage. Tat-ham Coinco, Springfield 30, Mass.

**5-IN-1 Special**, \$1.00. 1893 Columbian half dollar; coin album; wooden nickel; check list and coin catalog. Ben's, PM Dept., 31 North Clark, Chicago 2.

**SET** Japanese invasion notes for United States, \$2.00. Burma note and coin catalogue, 25c. Shultz, Salt Lake 10, Utah.

**GET** Profit and pleasure in collecting old coins. Send 10c for 56 page illustrated coin catalog. You'll be delighted with it. Send for it now. B. Max Mehl, 370 Mehl Bldg., Fort Worth, Texas. Largest rare coin establishment in U. S. Established 53 years.

**WANTED**—1894-S Dime pay \$500.00. Certain 1913 nickel \$1,000.00. 1901-S quarter \$20.00 to \$150.00. Hundreds of others. Know their true value. Complete illustrated catalogue 25c. Worthycoin Corporation (D-325) Boston 8, Massachusetts.

### PRECIOUS STONES, MINERALS

**GEMCUTTING**, Silvercraft authority. Illustrated magazine tells how. Cut rocks, make jewelry. 150 ads illustrating equipment, offering gems for collectors, cutters. Postal brings literature. Lapidary Journal, Drawer B, Palm Desert, Calif.

**"GENUINE"** Red Arizona rubies (garnets). Send quarter for packet. Bitner's, Box 1025, Scottsdale, Arizona.

**DIAGEMS**, Newest and hardest synthetic jewels. Brilliant blue-white, every diamond cut.  $\frac{1}{2}$  to 5 carats, unmounted, for your settings. Rare value. Free catalog. Diagems, Hampton Bays 7, Long Island.

**8 PENNSYLVANIA** Mineral specimens \$1.00. S. Ritter, Route 3, Lewisburg, Penna.

**URANIUM** Mineral specimen, radioactive, harmless. 50c coin. U. S. only. Raze, Box 158M, Grants, New Mexico.

**JASPER**, Agate, quartz, and catalog 25c. Gemco, Elkhart Lake 4, Wis.

**GOLD**, Uranium and other radio active minerals. Prospect in your own yard or open country for precious metals. Write for only books that tell how. "Gold and How to Find It." \$2 postpaid, fully illustrated. Chapter on Geiger Counter. Balcony Downs Pub. Co., Glasgow, Virginia.

**GEMSTONES**. Mineral specimens. Every variety. Lowest prices. Postcard brings free booklet. Plummer's, 4720 Point Loma Ave., San Diego 7, Calif.

**FIND** Tungsten, mercury, uranium with Mineralight. Free brochure. Write Dept. PM8 Ultra-Violet Products, South Pasadena, California.

**GEMS**. Precious and semi-precious, genuine, from world-wide sources. Deal direct, no overhead, save money. Catalog 10c. Hill Co., 5450-G Portland Rd., Salem, Oregon.

**GEMS** And minerals, beautiful magazine tells how to cut and collect. Brochure and book list free. Gembook Co., Palmdale, Calif.

### ANTIQUES, RELICS, INDIAN GOODS, CURIOS

**YOUR** Trash another's treasure! Get valuable list of 400 interesting antique items in demand by antique trade. \$1.00. M. & S. Service, Box 69, Batavia, Ohio.

**4 PERFECT** Arrowheads \$1.00. Fine grooved tomahawk \$3.00. List free. Lear's, Glenwood, Arkansas.

**ANTIQUES** Pistols, flintlocks, muskets, swords, list 25c coin or stamps. Westbrook, 5537 Lafaye Street, New Orleans, La.

**4 PERFECT** Arrowheads \$1.00. Flint knife 50c. Hide scraper 50c. Stone axe \$3.00. Perfect pipe \$3.00. Flint hoe \$1.00. List 10c. H. Daniel, Lamar, Arkansas.

### HOBBIES AND COLLECTIONS

**MAKE** Your own leather articles for spring use. Your leather belts, billfolds, purses made at home brings pleasure to all members of the family. Free catalog. Tandy Leather, Box 397, C. Tulsa, Okla.

**MONSTER** Hobby-craft catalogue. Trains, planes, boats, crafts. 25c refund ed. Nassau Hobby, 35 Church, Freeport, N. Y.

**50 DIFFERENT** Army embroidered patches \$1. Other bargains. Insignia Mart, 703A Broadway, New York 3, N. Y.

**PROFITABLE** Perennial garden, post paid \$1.00. Satisfaction guaranteed. Cuthbert, Plumer, Oil City, Penna.

**CELLOPHANE** Bag sand from cave where Floyd Collins died 25c. Cave onyx 25c. Letters remailed from Mammoth Cave 25c. Greene's, Cave City, Ky.

**CIGAR** Store Indians. Reproductions made to order. Peter Meindl, Raymond, N. H.

**EXCITING** Hobby; collect authentic military patches, insignias, campaign ribbons, navy rates, etc. 57 assorted \$1.00. Free gift. Pritt, Dept. M-4, 12 West 27, New York City.

**WANTED** Cigarette, tobacco, cards. Write Charles Bray, East Bangor, Penna.

**BIG PACKET** foreign campaign ribbons. Colored catalogues. \$1.00. Medcrafts, 421 6A St. N.E., Calgary 2, Canada.

**UNUSED** Matchbook covers—100 different \$1.00 36-page catalog 25c. Charles Edelman, 1311C East 84, Cleveland 3, Ohio.

**INVENTING** Can be an interesting and profitable hobby. Write for complete particulars. Institute of American Inventors, Dept. 40-E 631-E St. N.W., Washington 4, D. C.

### CAMERAS, PHOTO SUPPLIES

**BASS** Says: Trading since 1910. Used but good as new buys: 8mm. B&H Sportster \$52.50; 16mm. Keystone A-7, F:2.5 lens \$37.50; Voigt. 35mm. Vito II, flash shutter. Skopar F:3.5, like new \$38.50; Kodak Reflex F:3.5 lens, like new \$88.50; Contax I, F:2 Sonnar \$87.50; 3 $\frac{1}{4}$  x 4 $\frac{1}{4}$  Speed Graphic, Skopar F:4.5, Ibsor shutter, \$52.50. Satisfaction guaranteed. Bass Camera Co., Dept. AG, 179 W. Madison St., Chicago 2.

**FREE** Photographic bargain book packed with hundreds of sensational values in still and movie cameras, lenses and latest accessories. Super savings for you in new and used equipment. No money down. Up to 15 months to pay. Liberal trade-in allowances, too, on your own equipment. Write now for your free copy to Central Camera Co., Dept. 9A, 230 S. Wabash Ave., Chicago 4, Ill. (Photographic headquarters since 1890.)

**SAVE** Money on guaranteed nationally advertised camera film. Write for price list. Ideal Service Supply, 2101-B, Barclay Road, Oklahoma City 14, Okla.

**PHOTOGRAPHERS** Big profits. Free details. Howell Photos, Box 91W, Brooklyn 12, N. Y.

**NEW** Cameras \$2.00 postpaid. Wallace Jewelry, 3763-G South Wabash, Chicago.

**LIFETIME** Guaranteed camera and film only \$2.00 postpaid. David Ward, 1290 Berkshire Ave., Indian Orchard, Mass.

**20 TO 40%** Discount factory sealed cameras, projectors, recorders. Send us your needs. Dart Sales, 3812 Atlantic Ave., Brooklyn 24, N. Y.

**CLOSING** Out cameras, projectors. Free list. Bob's, 1210X 6th Ave., New York City.

**BUY** Wholesale nationally advertised cameras, photo supplies, thousands other products at big discount. Free "wholesale plan." American Buyers', 629-RR Linden, Buffalo 16, N. Y.

**DIRECT** From manufacturer. 2x2 slide projector, 100w \$12.95, guaranteed. Vuaid, Box 74, Ann Arbor, Mich.

**PHOTOMURALS**. Your negative or ours. Catalogue 25c. Photomammooth Murals, Dept. M, 12048 Vanowen Street, North Hollywood, California.

## PHOTO FINISHING

THE Photo Mill. Immediate service. No delay. Eight exposure roll developed and two prints from each negative—4c; or eight jumbo prints 38c. Single reprints 3c each; jumbo reprints 4c each. Write for complete price list and roll film mailers. The Photo Mill, Dept. K, 1511 Hennepin, Minneapolis, Minn.

FREE 5x7 Enlargement with each roll developed. Jumbo Kodak album prints 8 exposure roll 35c. Send for mailer. Photo-Craft, Box #637-M, North Miami, Fla.

WHOLESALE Photographic supplies. Cameras, films, projectors, enlargers. Write for free catalog. Capitol Photo Supplies, 2428 Guadalupe, Austin, Texas.

ENLARGEMENTS—Six 5x7, \$1.00; four 8x10, \$1.00. Brownell, 4315-M Eastside, Dallas 4, Texas.

SENSATIONAL Kodak album complete with 8 beautiful jumbo prints 50c; 12, 75c; 16, \$1.00. Same day service. Art's DeLuxe Service, Box 273, LaCrosse, Wisconsin.

8 CONTACTS 30c, Jumbos 40c, 12-45c, jumbos 55c, reprints 4c, jumbos 5c. Western Photo, Dept. PM43, Box 298, San Francisco 1, Calif.

FREE Enlargement (25c value) with trial order. 8-exposure roll, 25c; reprints only 3c each. 7-hour service and custom quality are yours at The Photo Nook, Box 2134, Billings, Montana.

DOUBLE Size prints—8 exposure roll 30c; 12, 45c; 16, 55c. Prompt service. Free mailers. Emerson Photo, Emerson, N. J.

BEAUTIFUL Sepia toned, silk finish enlargements, made from your negative. Four 5x7s or three 8x10s \$1.00. Harvey Photo, 137 Spring Garden, Easton, Penna.

ALBUM Jumbo prints. 8 exposure 35c; 12, 50c; 16, 65c. Reprints 5c. Free mailers. Southwestern Photo, Box 386, Tyler, Tex.

TWO Beautiful prints from each picture on 8 exposure roll 35c. Thirty-one years of satisfied customers. Quick service. Lens Photos, Dept. J-4, Janesville, Wis.

JUMBO Prints (deckle edge)—8 to 12 exposure film 39c per roll, developed and printed. Same-day service. Dean Studios, Dept. 6, Des Moines 2, Iowa.

BEAUTIFUL Enlargement from each picture on 8 exposure roll 35c. Cut Rate Photos, Dept. B-4, Janesville, Wis.

TWO Prints each good negative, 8 exp. 35c; 12 exp. 50c; 16 exp. 65c. Reprints 4c. Mayfair Photo Service, Box 617-K, Toledo, Ohio.

SATISFACTION Guaranteed! Eight jumbo size prints mounted in album, 35c—12 to 16 exposure rolls, 50c. Free mailers, quick service, finest developing, finishing. Crown Studios, Box 1223-PM, Dallas, Texas.

12 JUMBOS 25c, 16 Jumbos 35c, from any size roll or negatives, with this ad. Skruland S. Lake Geneva, Wis.

GIANT Size deckle album prints. 8 exposure roll, 35c, 12 exposure 50c. Send money. Free mailers. Dow Photo Co., P.O. Box 2077, Ft. Worth, Texas.

ENLARGEMENTS! Eight 5 x 7's or five 8 x 10's, \$1.00. Wilart Enlargers, Box 967, Little Rock, Ark.

CUSTOM Photo finishing guaranteed. 8 exposures 35c; 12, 50c. Bound in beautiful plastic ringed album. Special! 35mm., 36 exposure \$1.00. Free mailer. Flash Foto, Box 36M, Brooklyn 4, N. Y.

PAST—Same day service! 8 oversized prints in attractive plastic-bound book only 35c; 12-50c; 16-60c. Satisfaction guaranteed. Free exposure guide with first order. Pic-Sure, Box 899-B, Philadelphia 5, Penna.

6 OR 8 Picture roll 35c, 12 or 16 picture roll 55c. Each roll printed and developed. Handy album pack. If you fail to get pictures on your film a new roll will be sent you without extra cost. Send coin with roll. No c.o.d.'s. Mailing containers sent free. DeLuxe Film Service, Box 1268-A, Shreveport, Louisiana.

## MOTION PICTURES AND SOUND EQUIPMENT

FREE Film rentals—16mm. sound and silent. Many color. Send quarter for list of 50. Empire Projection Service, Box 1235, Santa Rosa, California.

TAPE Recorders, phonographs, record changers. Unusual values. Dressner, 624-M East 20th Street, New York City 9.

CLEARANCE Sale of 16mm. sound films. Want a real buy in 16mm. sound films? Take advantage of the I.C.S. 1953 clearance sale of 16mm. sound features, comedies, cartoons, educational films, religious subjects—New, used. Send for our giant list "A" today stating machine you own (make and model.) Institutional Cinema Service, Inc., 1560-PM Broadway, New York 19, N. Y.

ALMOST Free with Blackhawk's big 24-page film bargain catalog, one brand new film (our selection) postpaid: 1 reel, 16mm. silent 300', \$1.98, regular price, \$9.75 or 1 reel, 8mm. 150', 99c, regular price \$5.95. Used 16mm. sound films, \$3.98 per reel up. Hundreds of titles available. Used Panoram 100' 16mm. musicals, six for \$4.99. New 16mm. sound releases, \$11.95 per reel; 8mm., \$2.98 per reel. Used 16mm. sound projectors. Ampros, Bell & Howells. Victors often available low as \$129.95. Write today for Blackhawk's free catalog. Blackhawk Films Inc., 1221 Eastin Blvd., Davenport, Iowa.

WILD Life films. Exciting, dramatic action in the natural habitat of animals of forest and plain. 8mm. or 16mm. in beautiful color or B & W. Also 2" x 2" color slides. Write for free illustrated literature. Wild Life Films, 5151AA Strohm Ave., North Hollywood, California.

16MM Sound films, all lengths, sale, trade. Mertz Films, San Bernardino, Calif.

"JACOT'S 1953 Rose Parade." 8mm., \$15; 16mm., \$30. Color, sound. Box 572m, Manhattan Beach, Calif.

USE Wipes between home movie scenes. Add professional touch. 8mm., 16mm. Material and instructions \$1.00. R. S. Peterson, 2445 Maffett, Muskegon Hts., Michigan.

16MM Sound projectors. Castle sound film subjects, splicers, screens, lamps, etc. Projector repairs. Ideal Supply Service, 2101 Barclay Road, Oklahoma City 14, Oklahoma.

5000 NEW-Used 8-16mm. silent-sound films. International-B, 2120 Strauss, Brooklyn 12.

BARGAINS 16MM. sound films. Also for exchange. Bedner, 5300 So. Talman, Chicago.

8-16MM. Silent-sound films. Complete rental library. All latest subjects. Free catalogue, sample film 10c. Garden Film, 317 West 50th, New York 19.

RENT 16MM. sound films, 50c reel. Large selection; free catalog. Film Service, 128 Chestnut St., Roselle Park, N. J.

GUARANTEED Fresh 8mm. roll, magazine; 16mm. roll, magazine movie films. Color, b&w. Free catalog. ESO-S, 47th Holly, Kansas City 2, Missouri.

MOVIE Camera film: 8mm. roll \$1.50, 16mm. 100' \$3.00. Free processing. Better Films, 742 New Lots, Brooklyn, N. Y.

"ENTIRE Life Story of Christ" 8 mm., 16mm., sound and silent, purchase or rent. Hemenway Film, 31F Church St., Boston 16, Mass.

## MUSIC AND MUSICAL INSTRUMENTS

PLAY Accordion the modern way from records. No instructor necessary. Send for circular O. Pagani, 289 Bleecker, New York 14, N. Y.

LAWRENCE Welk ash-tray. Beautiful ceramic simulated accordion. \$2 postpaid. Bob-Roy's, 7760 Santa Monica Blvd., Hollywood, Calif.

PLAY Accordion the Phil Baker way. No musical background needed. Ask for circular. Music Publishers, 289 Bleecker, New York 14, N. Y.

POEMS Wanted for musical setting. Send poems for free examination. Five Star Music Masters, 630 Beacon Bldg., Boston, Mass.

SONGWRITERS! Protect your ideas! Hold all songs, poems! Write for safe correct procedure first! Song Service, Dept. P, 333 W. 56th St., New York 19, N. Y.

1953 ACCORDIONS—World's finest. Save 60% and up! House of Accordions, 10 Conway Rd., Shelburne Falls, Mass.

MUSIC Arranged, songs printed. Frank Wildt, Music Publisher, Lancaster, Penna.

LEARN "How to become an amateur songwriter." No knowledge of writing music or playing of musical instruments necessary. Send \$1 for booklet. Amateur Songwriter, Box 9972, Pittsburgh 33, Penna.

1953 ACCORDIONS—Wholesale. Free catalog. American Accordion Center, 5329 Belmont, Chicago.

ACCORDIONS—Save 50% and up. Cash or terms. New and used. All brands. Wholesale to everyone. Free catalogue. Del Principe, 29 South Cicero, Chicago 44, Ill.

POPULAR Songs. How to write and sell them. Write for free booklet Successful Songwriting. Gateway Songs, Box 2470, Hollywood 28, Calif.

SONGWRITERS! Send poems, songs. Music Service, 243 West 72nd St., PM, New York 23.

POEMS Wanted to be set to music. Free examination. Send poems. McNeil, Master of Music, 510-PM S. Alexandria, Los Angeles, California.

WANTED! Poems for musical settings. Write Songwriters' Service, Clifton, N. J.

WRITE Songs. Big money and reputation. Write for information. J. Gordon Pub. Co., 4700 South California Avenue, Chicago.

SONGPOEMS Wanted. Mail to: Tin Pan Alley, Inc., 1650 Broadway, New York 19, N. Y.

SENSATIONAL Free booklet, "How To Write And Sell Songs." Get the facts first. Poems examined free. Reliable Music Service, Box 430-P, Hollywood 28, Calif.

## RADIO AND TELEVISION

BUILD 15 Radios—Only \$19.95 complete. Free radio tester, tools, soldering iron. No experience required. Enclose 25c for valuable Radio-TV Repair Guide and kit catalog. Progressive Electronics, 497 Union Ave., Dept. PM4, Brooklyn 11, N. Y.

FREE 236 Page 1953 television-radio-electronic catalog! World's largest stocks, lowest prices. Complete supplies for builders, experimenters, amateurs, servicemen. Latest television, radios, phonos, recorders, sound equipment. Thousands of parts, tubes, test instruments, books, diagrams. Top quality money saving values. Get yours now! Allied Radio Corp., 833 W. Jackson Blvd., Dept. 34-D-3, Chicago 7, Ill.

MAKE Simple television picture tube rejuvenator. Illustrated instructions 25c. Complete kit \$2.00. Wagman Electronics, 223-A Degraw Ave., Teaneck, N. J.

CRYSTAL Radio-experimenters. Write Leslie Hulet, R4, Lakewood, N. J.

EXTRA-Loud crystal, catwhisker, catalogue, latest radio plans: 25c. Amorose, Rte. Four, Richmond, Virginia.

REPAIR Your own radios. Complete, simplified, instructions only \$1.00. Details free. Slate's Radio Service, Corsicana, Texas.

BUILD Any .630 television set with Brooks life-size easy to follow step-by-step instructions \$2.49. Television literature package \$1.00. Instructions for installing a Cascade tuner in any television set 50c. Catalogs with wholesale offers on television, radios, equipment, parts, tubes, etc. Free with each order. Popular Electronic, 250 Crown St., Brooklyn 25, N. Y.

EXPERIMENTER'S Plans, diagrams, blueprints, booklets. All kinds. Free catalog. Dittofax, 5208-A Onacrest, Los Angeles 43.

BUILDER'S Pictorial plans. Free list. Alena, Box 24, Astoria 6, New York.

UHF! Paramount antenna, set, conversion, problems analyzed. 25c. Cywar Television, West Point Pleasant, New Jersey.

ENJOY 3 Color television filter screen now. Changes dull eye straining black-white pictures into beautiful color tones. Seconds to attach. Send \$1.50 for 16" or under; \$2.00 size 17"; \$2.50 size 20"; \$3.00 size 21"; \$4.00 size 24". Money back guarantee. Zingo Products, Johnstown 7, New York.

15 TESTED One-tube circuits 25c, including "Radiobuilder," catalog. Laboratories, 1131-C Valota, Redwood City, Calif.

SENSATIONAL Television multi-color screen changes plain black and white television pictures into beautiful, lifelike reality. Quick sales. Representatives wanted. Literature free. National Telecolorvision Screen Co., Box 708, Brownsville, Texas.

BRIGHTEN Dark picture tubes. \$4.90. Guaranteed. R. MacAuley, 688 Eddy, Providence, R. I.

AMAZING Television antenna eliminator. Small device attached to rear of set where it's out of sight. Outperforms outdoor aerials. No snow, no ghosts. Send only \$2.95 or write for free details. Arrow Sales, 2306 S. Howell, Milwaukee 7, Wis.

CLEARCO Crystal radio kit \$1.50; preassembled \$1.75. Free catalogue. Clearco Crystal Co., Box 1857, Milwaukee, Wis.

**MAKE** Simple, tubeless, batteryless distance-getting crystal radios. Crystal and illustrated instructions 25c postpaid. Allen, 427-F, Clinton, Missouri.

**CRYSTAL** Radio needs no antenna, ground. Receives while you carry it. Complete plans 25c. Box 6008, Kansas City, Mo.

## BUSINESS OPPORTUNITIES

**FABULOUS** Florida. Cool in summer—warm in winter. Fast-growing Florida offers many opportunities. If you are interested in going into business in fast-growing Florida, write State of Florida, indicating type of business you are interested in and stating your specific requirements. You will be put in touch with communities where opportunities exist. Get complete information, without cost or obligation. Write today. State of Florida, 4217A Commission Building, Tallahassee, Florida.

**ELECTROPLATING** Correspondence course. State licensed. Free details. Kushner Electroplating School, Stroudsburg 4, Penna.

**EARN** Money raising earthworms. Information free. Miller's Mammoth Worm Farm, Route 1, Murray, Kentucky.

**START** Home mailorder business. Details. Gedgard, Box 798-F, New York 1, N. Y.

**LIVING** Miniature ("Ming") trees only 10 to 20 inches tall. Grow at home. Big profits! Spare time opportunity. Fascinating! Amazing! Write for free seed and plan. National Nursery, Dept. FC, Inglewood 4, California.

**NEWEST** Spare, full-time home business. \$5 to \$10 hour possible. Paint with suede—The finish with touch and eye-appeal. Beautify auto dashboards, signs, radios, toys, figurines, lamps—100 others. Complete, step-by-step instructions sent for no-risk examination. Free details. Coast, 1004-BA So. Los Angeles St., Los Angeles 15.

**IMPORT-EXPORT!** Opportunity, profitable, world-wide, mail-order business from home, without capital; or travel abroad. Established World Trader ships instructions for no-risk examination. Experience unnecessary. Free details. Mellinger 24, Los Angeles 24.

**ADVERTISING** Book matches—Cash in on big demand; sell union label matches. Cuts for all businesses and political parties. Free powerhouse selling kit, low prices, protection guaranteed on repeat orders. Cash commissions. Superior Match Co., Dept. MX-453, 7530 Greenwood, Chicago.

**YOUR** Own business in your basement. Very profitable. Sideline or full time. Patterson, 2518 Beaver, Des Moines 10, Iowa.

**MAKE** Durable plastic of waste. Makes attractive floors, plaster, built-ins, stucco. Build good home \$150.00 room. Bays Laboratory, Oklahoma City 9.

**START** Your own business on credit. Your own boss. 1586 of our dealers sold \$5000 to \$27,500 in 1951. We supply stocks, equipment on credit. 200 home necessities. Sales experience unnecessary. Pleasant, profitable business backed by world-wide industry. Write Rawleigh's, Dept. D-U-PPM, Freeport, Ill.

**MY** Husband, college professor, devised a scientific mail order plan that brings \$100 monthly to our mailbox. Since the plan works anywhere, we bought a beautiful ranch, operate here. Anyone intelligent can apply our plan. Details free. Eveningshade Ranch, Helotes, Texas.

**TURN** Your spare time into easy dollars raising earthworms. Send 10c for illustrated folder. Earthworm Gardens, 224 W. Valley, El Monte, Calif.

**PROFITABLE** Spare time business—Start with less than \$5.00. Four way profits on your initial investment. Free details. H. R. B. Co., Box 646M, Hermiston, Ore.

**FREE** Booklet reveals amazing secrets behind 301 new profitable enterprises! Many mailorder! Includes confidential instructions for starting wholesale buying service. Deumann Business Surveys, 79-R Deumann, Kenmore 23, N. Y.

**START** Your own profitable home mailorder business! We supply everything! Write today! Studio Products, Box 564-AE, Glendale 5, Calif.

**NATURAL** Molding latex. New low prices. Extra thick. Free sample. W. Wooley, 115-A Donald, Peoria, Ill.

**LEARN** Silk screen printing; invisible reweaving; repair dolls; make rubber stamps. Rubber for molds. Large catalogue free. Universal, Box 1076-A, Peoria, Ill.

**START** A buying service, buy wholesale thousands nationally advertised products. Make big profits selling at sizable discounts. Postcard brings details. American Buyers, 627-R Linden, Buffalo, N. Y.

**MAKE** Perfumes at home. Write. "Carey Laboratories," 1914 Chouteau PM-4, St. Louis 3, Missouri.

**WANTED!** Home producers, by manufacturers in our clearing house service. Become a sub-contractor, casting plastic products for these companies. Thousands of easy-to-make items required for consumer and industrial use. Cash in at home, without previous experience. Write Plastic Service Associates, Dept. PM4, East Boston 28, Mass.

**BUY** Wholesale from nationally advertised manufacturers, distributors. Literature free. Carter Publications, Box 6011-D, Chicago 80.

**NEED** Capital? Where and how. 41 ways! Free details! Vault, 3757-B Wilshire, Los Angeles 5.

**RADIO** Advertising without risk! Pay "per order"! 400 broadcasters! Details free! Simon—P13, 48 Fifth Avenue, Pelham 65, New York.

**GET** Dollars in your mail—Keep every cent. Orders filled free. Genmerco, Box 142, Boston, 24B, Mass.

**HAVE** Home mail business—Everything furnished. Complete idea-mailbox service. Start low as \$150.00. Booklet 25c. Details free. NMD Agency, Box 88, Boston 22A, Mass.

**FREE** Information—Home business opportunity mailing to automobile owners. Everything furnished. Big earnings. Wood, 2-B Intervale Road, Worcester 2, Mass.

**OPERATE** Profitable mailorder business. Details. Natel, 411-C Paulson, Passaic, N. J.

**BUY** Wholesale—Thousands nationally advertised items. Save, make money! Free details. Durex Co., Box 672-U, Chicago, Ill.

**"HOW TO RAISE THE MONEY YOU NEED."** \$2.98 postpaid. Refund if dissatisfied. Details free. Enterprise Bureau, Syracuse 2P, N. Y.

**START** Profitable business selling lumber, wood products by mail. No investment. Chas. Webster, 372-C, Guttenberg, Iowa.

**"MAKE Perfume."** Catalogue free. "International," 6347 Parnell-PM-4, Chicago 21, Illinois.

**START** Home business. Fix (patch) dents, scratches, cracks, blemishes on all varnished wood surfaces. Experience unnecessary. Small investment. Amazing profits. Literature free. Monarch Specialties, 3440 N. Pulaski, Chicago 41.

**NO** Equipment, big profits selling glass, wall, waterless hand cleaner. Add water to concentrates. Donnell Sales Co., 430 Base Line, San Bernardino, Calif.

**NEW!** Develop profitable business. Convert electric signs to modern flasher type. Simple installation. Big profits. Merchants appreciate modernization. Quantity discounts available. Rush \$1.98 for sample converter. Stann & Co., 30 W. Washington, Chicago 2, Illinois.

**ARTKOTE** Stone facing molds can help you become independent. Sample mold \$2. Literature free. Dividend Company, Liverpool, N. Y.

**OPERATE** Profitable mail-order business. Splendid opportunity. For details write Roy's Mail Order Service, Wabasha, Minn.

**LIQUID MARBLE**—Colorful, glossy! Molded, brushed, sprayed! Cast novelties, statuary, colored tiles. Flexible molds. Composition floors. Particulars free. Marbleizing Service, Edwardsville, Illinois.

**MAIL** Order business using profitable free advertising method reaching 66½ million. Revealing information free. H. F. Seidel, 7070 Hollywood Blvd., Hollywood 28, California.

**EXCITING**, Profitable, hobby. Collect old and rare books. How and where to find, city or country. Pay few cents each. Where to sell, plus list 200 books that have sold for \$50 to \$5500. Send \$1. Bar'l'e, Box 481, Peoria, Illinois.

**"MAKE Products"**—Sell mailorder formula catalogue free. "Imsco," 6347 Parnell-PM-4, Chicago 21, Illinois.

**OWN**, Operate, route—"Wishing wells." Place these new \$7.50 skill games on counters in cafes, luncheonettes, clubs, etc. collect coins weekly. Legalcharr, Box 929, Long Beach 1, California.

**START** Your own business on shoestring, and earn a substantial income by mail, in your spare time at home. Full details free. Standout Products, 141-T North LaBrea, Los Angeles 36, California.

**FLEXIBLE** Rubber moulds for plaster and Marblite figurines. Sample and large illustrated catalog 25c, refunded on first order. K-C Novelties, Dept. 23, Easthampton, Mass.

**NEW!** 1953 Mail order buyers directory gives you latest supply sources, other valuable money-saving, money-making, information! Only \$1.00 postpaid. Campeau, Box 383-PM, Renton, Washington.

**SPECIALIZED** Magazines covering your field of interest help you to greater success. Get latest copies through our easy-to-get-acquainted service. Hundreds of business, trade, professional, educational, sport, hobby, dairying, dental, diesel, dramatic, drug, electrical, engineering, farm implement, livestock, and others covering all interests. Send for list today. It's free. Commercial Engraving Publishing Company, 34C North Ritter, Indianapolis 19, Indiana.

**LEARN** Sewing machine repairing, etc. Everywhere our spare time men-women are cashing in. Parts, motors, zigzag, and other machines wholesale. Earnings confidential. Write Taylor Service, Hamilton, PM-4, Ohio.

**SAWDUST**. Turn it into cash. Twenty methods. Instructions 50c. Charles Company, 12-Day, Norwood, Ohio.

**UNLIMITED** Earnings from mails. Everything supplied. Maberly, 11-Lee, Washington 12, D. C.

**SELL** By mail. Everything furnished. Morris Petterson, Box 8734, Houston 9, Texas.

**GROW** Plants, flowers. Details free. Shifters, Box 129, Millersburg, Penna.

**WHERE** To buy at wholesale 100,000 articles. Free list. Also extra-income information. Maywoode, 1133 Broadway, New York.

**BEST** Invisible reweaving method! Harris, P.O. Box 7112, New Orleans, Louisiana.

**GUARANTEED** Profits! Radio advertising without risk! Pay "per sale!" 450 stations! Free information! Dominion Advertising, 42 (P) Hillcrest Drive, Alexandria, Va.

**LIFETIME** Business! Manufacture extremely profitable chemical products! Descriptive information free! Thermolab, Peoria 4, Ill.

**MAKE** Money mailing cards, circulars. Peaceful, profitable. Paton, Box 55-E, New York 23, N. Y.

**NEWSPAPERS**. Turn them into cash. Eighteen methods. Instructions 50c. Charles Company, 12-Daz, Norwood, Ohio.

**START** Business without capital! Reliance, 15-A Park Row, New York 38, N. Y.

\$50 AN HOUR in spare time. Johnson, 351-B, Ithaca, New York.

**80%** PROFIT With our O.R. mail order plan. Complete plan, ad copy, etc. just 25c. Mann-Sales, 17 William, Hillsdale 2, N. J.

**SECURITY** And profit in the country. Live happier. Earn comfortable income. Free facts. Hermes Publishers, 152-E West 42 Street, New York.

**HAVE** Big time mail business. Get ideas, help, inspiration from others who made fortunes. Fern, 513-A West 61st, Chicago 21, Illinois.

**FOLIO** "\$45,000; Unlimited vacations plan" free! No canvassing, mailorder, merchandise, equipment. Unknown. Works itself—home! Keep job. Haylings, Carlsbad, Calif.

**MINIATURE** Trees. Why pay \$5 for growing secrets? Free details. Tiny Trees, 5038 N. Winthrop Ave., Chicago 40, Ill.

**FRANCHISES** Make profits! Become independent; secure exclusive distributorship, agency operation your home territory. Alert yourself to fascinating, different, nationwide opportunities. Inquire today. National Franchise Reports, 452 Pure Oil Building, Chicago 1, Illinois.

**TYPE** For pay. 25 ways. Write McAllister, 1513-PM4 Charlotte, New York City 60.

**LIFETIME** Opportunity for men of mechanical engineering backgrounds. Earn up to \$10,000 yearly buying, selling used machine tools. Lathes, mills, shapers, drill presses, etc. We are a large Chicago machine tool firm looking for additional help in outlying districts. We pay immediately for every purchase and sale. No holdovers. Write immediately for our complete plan for going into business. No cost to you. Mandel-Camras Machinery Co., Inc., 1324 W. Randolph, Chicago 7, Illinois.

**BUY** It wholesale! Manufacturers, distributors offer 850,000 items. Literature free. Olsen, 1231-A East Third St., Duluth 5, Minn.

**STOP** Money worries. Own profitable business, mailing advertising literature. Write Specialty Products, Box 166, PM1, Mt. Holly Springs, Penna.

**START** Your own business with a route of nut, candy or gum vendors. No experience necessary. Full or part time. For full information, write for Catalog 100 to Rake, 609-P Spring Garden St., Philadelphia 23, Penna.

**MAKE\*** Money selling photostamps. 300% profit! Send photo/negative (returned unharmed), \$1 for 100 photostamps, sales details. National Photostamp, Dept. 1, 654 Broadway, New York City 12.

**SCHOOL** Of real estate—No classes. Certificate given. Free lesson. Sterling, Great Neck 7, N. Y.

**MAKE** \$6.73 Every time you sell one. And they're amazingly easy to sell! We have new adding machines in original factory cartons you can sell for only \$14.95 and you make 45%. They're executive model portables, precision built with automatic clearance, direct subtraction, fully guaranteed. Send for life size color photo with full details. Write today to Lightning Adding Machine Co., Inc., Dept. P-28, 1260 West Second Street, Los Angeles 26, Calif.

**EVERGREEN** Boughs turned into cash. Instructions, markets \$1.00. Wildcrafters, Caledonia, N. S., Canada.

**SELL** By mail. Make real money. 25c (coin) brings required information. How to get started. Act now! Willis Book Shop, 1401-A Whitelock St., Baltimore 17, Md.

**PROFITABLE** Extra income plan! Make face cream, hand lotion, shampoo—for personal use, gifts. Instructions \$1.00. Elleste, Inc., Box 217, Hackensack, N. J.

**METALLIZED** Baby shoes. The fabulous full or part time business that grows and grows with the ever increasing birth rate. Instructions, equipment and supplies from world's oldest and largest supplier for the industry. Send now for your copy of "Your Guide to Success in the Bronze Baby Shoe Business." Plus complete wholesale catalogue of equipment, supplies, and biggest selection of metal and onyx mountings. \$1 postpaid. Hollywood Bronze Supply, 1624-A East First, Los Angeles 33, Calif.

**BIG** Money! Start your own plastic business at home. Spare or full time. (Also valuable liquid marble information.) Free catalog. Write: Bing Products, PM-453, Watertown 72, Mass.

**BIG** Money in mail-order? Yes! if you know how. Sales letter quarter. Demby, Box 515, Miami 37, Florida.

**OPERATE** "Escalator" mailorder system, selling our products or any products. Fastest, most revolutionary mailorder system known. Write: Selbyco, Decatur 155, Ill.

**HOURS** Of pleasure, in figurine painting. America's greatest hobby. Send postcard for free circular. B. & J. Sales, P.O. Box 99A Homecrest Station, Brooklyn 29, N. Y.

**BREED** Rare tropical fish at home. Earn big money! Learn secrets! Help fill huge demand. Amazing opportunity! Free plan. Tropicals, 1008-F Los Angeles St., Los Angeles 15.

**NEW** Fabulous home-business. Pearlize baby shoes. Free money-making plan. Pearl-Art, 7216F Bear, Bell, Calif.

**IF** You have a meritorious business offer that requires financing write for free plan that may assist you to secure the money you need. H. Webb, 6225 Girard Ave., Philadelphia 39, Penna.

**OPERATE** Profitable mailorder business! Details free: Instructive booklet 25c. Shumaker, 2623-M Columbus, New Orleans 19, Louisiana.

**MINIATURE** Golf. Exceptionally profitable business. Detailed plans of 18 holes. \$2.98. Dixieland, 2924 Douglass, Memphis, Tenn.

**EXTRA** Dollars. Spinning angora wool for us. Angora House, PM, Springfield, Illinois.

**MAILORDER** Instructions. Get, "Dollars in the Mail." Eliminate expensive mistakes. Ranse, Box 1719, Richmond 14, Virginia.

**USED** Oil re-refining. Free facts about this amazing business. Severs, 3909 67th, Des Moines, Iowa.

**INCOME** From local information. No selling. Write Neherco, La Verne, Calif.

**BOOKKEEPERS**. Keep books, small firms spare time. Manual latest technique by C.P.A., \$3.00. Modern Business, Box 406, Youngstown 1, Ohio.

**EARN** Money with typewriter—Sewing machine! Details free. Edwards, 3915-PM, 12th, Des Moines 13, Iowa.

**MADE** \$24,500 Using money making plans from Scherer Magazine, world's oldest mailorder publication. Box 275M, Canfield, Ohio. Year \$1.00. Sample 20c.

**FREE** Electroplating information. Money making plans. Send postcard for your copy. Highly paid, interesting, uncrowded field. Plater M. Hyde, 327 West 120th Street, Los Angeles 61, California.

**QUICK** Sign painting. Use letter patterns, avoid sloppy work, wasted time. Write for sample. John Rahn, A1330 Central, Chicago 51.

**PRINT** Without printing press—Posters, banners, greeting cards, toys, glassware, neckties—anything! New "easy" revolutionary method. No special equipment or experience needed. Work full or spare time at home. No selling. We set up "your own local business." Wonderful moneymaking opportunity. Free sample. Profitable ideas, beautifully illustrated plan free. Write Screen-Print, 1010 South Los Angeles Street, Los Angeles 15.

\$46 FROM Square foot plywood; jigsaw necessary. Write: Woodarts, X-154, Bridgewater, Mass.

**LEARN** Metalizing baby shoes, jewelry, gifts. Bronze, gold, silver. Complete success plan free. Kikktavi Building, 7217-PM South Broadway, Los Angeles 3.

**FREE** Particulars "Profitable Home Business Projects" plus wholesale sources 740,000 items. Cottage Industries, Omaha 12, Nebr.

**FREE** Vending machines; if used to sell our profitable nuts. Continental, Box 1361-A, Milwaukee 1, Wisconsin.

**MAIL** Order opportunities. Write F. Tyler, 528 Piqua Place, Dayton 7, Ohio.

**WHOLESALER** Of sensational nationally advertised appliances, silverware, watches, cameras, etc. Start your own business. Full details. Send 25c for catalogue. International Sales Co., 175 Fifth Ave., New York 10, N. Y.

**EARN** Extra money with profitable home business projects, free particulars. Chamberlain, Box 894, Manchester, New Hampshire.

**START** Own business—Local mail order. Folder describes collection of 137 plans free. A Sales, 16P City Terrace, Newburgh, N. Y.

**PROFITABLE** Home business, electroplating novelties, giftwares, auto parts, mirrors. Easy, inexpensive home processes. Free booklet. Tyco Metals, Box 13231-MJ, Houston 19, Texas.

**SELL** Printing by mail! We fill orders. Free plans, samples. Sutton Printing, Box 853-G, Waycross, Georgia.

**RAISE** Chinchillas for profit. New "Easy-Pay" plan helps you start at low cost. Registered N.C.B.A. breeding stock. Write Kryders Chinchillas, Sturgis 1, Michigan.

**COLOR** Concrete with chemicals. Marble-glaze cement benches, pottery, garden ornaments. Home—shop, 10c brings sample, pictures. Hollywood Cementcraft, 8527-R Wonderland, Hollywood 46, Calif.

**MAKE** Gifts, novelties, jewelry, from sea shells, fish scales, plastics! Wholesale, illustrated catalog 10c. Giftcrafts, Box 4550-PM, Coral Gables, Florida.

**PROFITABLE** Home business. Make fast-seller chenille monkey trees, dolls, flowers. Terrific holiday demand. Information free. Velva, Bohemia 16, N. Y.

**TO** \$35.00 Weekly. Spare time, home operated, mailorder business. Successful "beginner's" plan. Everything supplied. Lynn, 10420-M National, Los Angeles 34, Calif.

**LIQUID** Rubber, make flexible molds. Free sample. Chaney, 1130 E. 16th St., Jacksonville 6, Fla.

**RAISE** Fishworms. Easy, profitable. Complete instructions 25c. Huffmans Worm Ranch, Rives Junction, Mich.

**FIX** Typewriters. Free booklet describes our modern, inexpensive home-study course. Factory methods taught. Write: Typewriter, Building 1, Tarentum, Penna.

**\$25 WEEKLY** Working two hours daily. No canvassing. No manufacturing. Lycke, Box 2471-A, Cleveland 12, Ohio.

**RESILVERING** Mirrors, formula 50c; two-way lookout mirrors, (No one sees you), 50c; coppered mirrors, 50c. All \$1.00. Nelko-Mir, Box 3462-J, Chicago 54.

**FIGURINE** Molds and many others, liquid rubber, statuary plasters, flock finishes, Glo-candle wax, etc. Illustrated catalog and "Plastercraft" manual free. Blue Rapids Supply, Blue Rapids, Kansas.

**START** Home manufacturing business. Make cleaners, soaps, polishes, cosmetics. Free literature. Kemix, Park Ridge, Ill.

**HOW** And where to obtain capital? Free details. Star Service, Wapakoneta, Ohio.

**BIG** Profits making new greaseless doughnuts. Start in kitchen. Wholesale to grocers and cafes. Free plans. M. Ray Company, 3605 South 15th Ave., Minneapolis 7, Minnesota.

**MAKE** Money spare or full time, casting metal toys and novelties. Big wholesale and chain store demand for autos, soldiers, ashtrays, banks, etc. keeps manufacturers busy. Production moulds furnished for up to 100 and more castings per hour. No experience or special place necessary. Write for information and illustrations of patterns needed. Metal Cast Products Co., Dept. A, 1696 Boston Road, New York 60, N. Y.

**NEW** Exceptionally profitable plans, ideas for home operated mail business. Rush name. Miller, 1772-P Carlyon Road, East Cleveland 12, Ohio.

**MAKE** Flexible molds! Cast plaques, bookends, figurines! Free sample! H. Tooker, 630-R Chestnut, Hamilton, Ohio.

**21 POPCORN**, Candy apple formulas, proven money-makers. Send \$1 today for formulas, catalog of money-making ideas. Concession Supply, 3916 Secor, Toledo, Ohio.

**RECAST** Old batteries into new. Latest achievements. Battery Laboratories, Minneapolis.

**READ** "Advance"—The voice of mail order. Offers money-making opportunities, sources of supply, personal guidance, etc. Issued monthly. Sample copy 35c. Yearly subscription \$2.00. Advance Publishing Company, 313 East 21st Street, Suite 450, New York 10, N. Y.

**GOOD** Paying business silvering mirrors, plating autoparts, reflectors, bicycles, bathroom fixtures, etc. by late method. No tanks or shop required. Outfit furnished. Free booklet. Gunmetal Co., Ave. H, Decatur, Illinois.

**BUY** Wholesale. Thousands articles. Supply directory. 10c. Idealco, Park Ridge, Illinois.

**EARN** Extra money! "Homeworker Magazine" tells how. Sample 25c. Size-more, Box 7, 4917 Kostner, Chicago 30.

**EXTRA** Money—No selling, operate vendors. Amazing profits, details free. Silver King, Suite 220, 622 Diversey, Chicago 14.

**OPERATE** Profitable mail order business. Write Walter Service, 4159-A East 112th, Cleveland 5, Ohio.

**EARTHWORM** Breeding? First, get unusual story. "An Earthworm Turned His Life." Free. Earthmaster, Dept. 14, El Monte, Calif.

**DOLLARS** In personalized baby record books. Sell by mail. Use same literature we do. No-Co-Ro, Oakland 6, Calif.

**MINK** Raising information free. Complete. Lake Superior Mink Farm, Superior, EE1, Wisconsin.

**COPUBLISH** Leading m.o. paper. Latest copy. Mail Sale Advertiser, details, dime. Vanroy Shirk, Lebanon, Penna.

**COLORGLAZED** Concrete pottery made without molds. Patented method. Cemetery products, novelties, tiles. Basement leak-sealing. Money-making projects. Booklet, details free. Men only. National Potteries Company, Grand Rapids, Minnesota.

**FREE** Book "505 Odd, Successful Businesses." Work home. Expect something odd! Pacific, Oceanside, Calif.

**POPCORN** And potato chip equipment. Long Eakins Company, 5360 High, Springfield 99, Ohio.

**MOLD** Making liquid rubber; sample pint, with instructions, \$2.00 postpaid. Plastercraft Supply Company, 3051 St. Clair Avenue, Cleveland 14, Ohio.

**START** Venetian blind laundry. Profitable lifetime business. New machine. Free booklet. F. C. Co., 442 N. Seneca, Wichita 12, Kansas.

**MAKE** Money at home as renewal headquarters for all magazines. Liberal commissions. No experience, no capital needed. Supplies furnished. Write for free catalog. McGregor Magazine Agency, Dept. 500B, Mount Morris, Ill.

**BOOKKEEPERS**, Increase earnings operating sensational bookkeeping service. C.P.A. system. Kern, 4942 Vineland, No. Hollywood, Calif.

**SELL** Books by mail! Wholesale catalog, 25c. Monarch, Auburn, New York.

**MAKE** Money from newspaper clippings. Siegel, Box 183 PM, New York 2.

**137 PLANS** For starting home business. Details: Elite Co., 220 Grand St., New York 13.

**METALIZE**, Permanize, ceramize, porcelainize, baby shoes, dolls, pottery, hundreds of items. No firing, no baking. Tremendous profits without costly equipment! Send 25 cents for complete business plan and illustrated instruction book. Professional Art Products, Dept. P.M. 25, 845 S. Wabash, Chicago 5, Ill.

**VENDING** Machines—No selling. Operate a route of coin machines and earn amazing profits. 32-page catalog free. Parkway Machine Corporation, Dept. 72, 715 Ensor St., Baltimore 2, Md.

**BE** The Popular Mechanics representative in your neighborhood and earn big profits in your spare time. Write Popular Mechanics Magazine, Room 408M, 200 E. Ontario St., Chicago, Ill.

#### MONEYMAKING OPPORTUNITIES

**INSTALL** Hand railings on stairs, terraces, porches. Unlimited applications. Provides safety. Cast aluminum universal joints lock with set screws. 1½ inch aluminum tubing will not rust. Easy to assemble. Fits any angle or grade. Install in wood, stone, ground or concrete. Profitable. Send for folder. Kloppenborg Aluminum Foundry, Dept. PMC-3, Davenport, Iowa.

**SELL** Snowballs. \$8.50 buys ice shaver that shaves into paper cup and enough flavor and cups for thousand snowballs. Other outfit \$2.50 up. Shavers, supplies, equipment. Illustrated circulars free. Snowball Co., 9534P Lemturner, Jacksonville 8, Florida.

"**THANK** You, call again" and 1999 other ultra-blue 7"x11" signs—Comedy, general, religious. Retail 50¢ each? 15 samples, \$1.00. Lowy, 812 Broadway, Dept. 722, New York 3.

**FREE!** Your own mailorder business! Everything furnished! No investment! Terrific profits! Write today. California Vitamins, 2910PM, Beverly Boulevard, Los Angeles 4, California.

**BUY Wholesale!** Nationally advertised appliances, housewares, jewelry, watches, radios, etc. Tremendous discounts. Write: Econ-O-Mart, Box 535B, Morristown, N. J.

**FREE** Booklet reveals amazing secrets behind 301 new profitable enterprises! Many mailorder! Includes confidential instructions for starting wholesale buying service. Deumann Business Surveys, 83-R Deumann, Kenmore 23, N. Y.

**\$10,800 PROFITS!** Your own mailorder business! No capital risk! "Success plan" (worth \$2) free! Write today! Treasury, 149 Storer, New Rochelle PM-10, New York.

**START** A profitable subscription business in spare time! We need men and women (young or old) as representatives for all leading national magazines. Liberal commissions paid for new and renewal subscriptions. Start earning money in this pleasant work at once! Clip this ad and send with your name and address to: International Circulation Division, Dept. PM, Hearst Magazines, 250 W. 55th St., New York 19, N. Y.

**NOTARY** Public commands more money. Be one. Stationers, Helotes, Texas.

**BE** Independent, be seure, have your own profitable business—Earn \$20,000 and more a day making beautiful, fast-selling lamps at home. No equipment needed. Illustrated course teaches you quickly. Course, parts catalog, wholesale price list—only \$2. Gearon Co., Dept. 200-B-4, 27 S. Desplaines, Chicago 6, Ill.

**OUT Of pawn!** Watch bargains: Bulova, Benrus, others, like new. Make big money and ask for details. Cosmos Sales, 81 East 125th Street, New York City.

**\$200 WEEKLY** Reported! No selling. Free booklet. T. J. Surface, Roanoke 4, Virginia.

**STEP** Into big money! \$25.00 day profit. Complete plan and working sample 50c. Mann-Sales, 17 William, Hillsdale 2, New Jersey.

**400 RADIO** Stations active. Free radio advertising. Pay commission only on orders received. Free information. Mishke, 2, Waseca, Minn.

**WIN** Contest money. General Contest Bulletin gives hundreds of tips. Lists current contests and rules. Sample 25c. General Contests, 1609½ East 5th, Duluth, Minnesota.

**START** A buying service, buy wholesale thousands nationally advertised products. Make big profits selling at sizable discounts. Postcard brings details. American Buyers, 630-R Linden, Buffalo, N. Y.

**ASSEMBLE** Electric fans. Exhaust and circulating for home, attic, kitchens, restaurants, offices, factories. Sells easily. You furnish electric motors; we furnish all fan parts. Send for wholesale parts catalog. Kloppenborg Aluminum Foundry, Dept. PMC-3, Davenport, Iowa.

**SENSATIONAL**. New! Make exquisite "ceramics" costume jewelry. From marine and botanical life. Gardenia, pansies, starfish, seahorse, etc. Write Jullum, Box 460, Ft. Lauderdale, Florida.

**CASH** In your ideas. Complete information now available. Prepared by experienced engineer-inventor. \$1.00. Full refund provision. O. W. Wood, 100 Church Street, Liberty Corner, New Jersey.

**DON'T** Envy the successful mail order dealer—be one. Write now. Payne's, 162-P McKitterick, Kentville, N. S., Canada.

**CHURCHES**, Clubs, organizations, receive \$130, 12 card tables free. Unique Club Plan, Pine Hill, New Jersey.

**BOYS**—Men, earn 80c or more in 10 minutes covering steering wheels with plastic. Material, instructions for covering one wheel. \$1. Plastics, R-1, Box 165, McAllen, Texas.

**GROW** Miniature dwarfed trees, instructions 50c. Metro, Box 103A, Berwyn, Illinois.

**HAVE** Profitable home business! New booklet, "101 Ideas," 25c coin or nine 3c stamps. Armstrong, 2196 North Francis, South Bend 17, Indiana.

**MAKE** \$2,000 Or more yearly in your spare time, selling with post cards. Carry no stock, orders filled for you! Particulars free! Alliance Sales, 568-B, Alliance, Neb.

**FREE** Details. Buy wholesale thousands of items. Write United, Box 87-M, Detroit 2.

**MAKE** Money at home! New folio "Homework as a Profitable Endeavor" tells how. Only 25c (refundable). Opportunities, Folio-A, Box 209, New York 28.

**MONEYMAKING** Formulas: Two-way mirrors. Resilvering mirrors. Dippit silver cleaner. Septic-tank cleaner. Battery charger. 50c each. All \$2.00. Ideal Service, Park Ridge, Ill.

**MAKE** Money at home mailing literature to new mothers. Terrific possibilities. Information and material furnished. Write: Williams Sales, Burton, Wash.

**PROFITABLE** Home business. Write Chamberlain's, 87 Arizona Place, Chandler, Arizona.

**WHITE** Tire cleaner—Concentrated powder, add water. \$1.00 postpaid. Menyo, Box 234, Inyokern, Calif.

**MAKE** Money selling by mail. Famous course teaches how. Free brochure. Manhattan House, Box 51-M, Saint Albans 12, N. Y.

**\$15 HOURLY!** Spare-time, without investment! Mailway, Box 198-D1, State College, Penna.

**WEAVING**—Rugs, drapes, tweeds, etc. at home. Can be profitable and pleasant; part or full-time job. Free catalog. Newcomb Loom Company, Dept. PM, Davenport, Iowa.

**EARN** Money evenings, copying and duplicating comic cartoons for advertisers. Adservice, Argyle 1, Wisconsin.

**SELL** Books, merchandise, by mail. Everything furnished! Free details. Paragon, Box 5, Providence 8, R. I.

**TYPEWRITERS**, Adding machines 30% discount. Television, refrigerators, motors, garden tractors, clothing, thousands world famous brands merchandise. \$1.00 guide reveals biggest discounts. Money back guarantee. More details free. Mayfair Discount Club, Wixom, Mich.

**DIME** Brings our nationally advertised "opportunity packet." Rinehart, 235 Baltimore, Hanover, Penna.

**MAKE** To \$4.50 hour doing common pen lettering. National Artists, 801½ North Marsalis, A-5, Dallas 3, Texas.

**GROCERIES** Without cost! Few hours weekly can supply your family. Free information! Send postcard now to Jaydee, P.O. Box 664, Woodland 1, Calif.

**SELL** Titania gems; \$9.75 carat wholesale. More brilliant than diamonds. Free catalogue. Diamonite, 1404-M Mitchell, Oakland 1, California.

**TIE-BREAKER** picture puzzles exposed, \$2.00. Wenograd, Box 1495, Philadelphia 5, Penna.

**SCHUHMACHER** Matmakers. Convert old tires into dollars. Devote full or spare time. S and S Patents, Inc., 1307 North Clark St., Chicago 10, Ill.

**50,000 ARTICLES** Wholesale. Source directory, dime. Nelko, Box 3462-DR, Chicago 54.

**PUBLISH** Your own magazine. Handsome 52 page format, well edited, illustrated. Cost low as \$1.00 month. Brings you prestige, profits. 25c brings sample, details. National, Ord. Nebr.

**137 PLANS** To make money, local mail-order. Details: Elite Co., 220 Grand St., New York 13.

**READ** Progressive Mailtrade, the magazine that tells how to make money by mail. Dime brings sample and special offer. Progressive Mailtrade, Box 357, Sheboygan, Wisconsin.

**FREE** Book "505 Odd, Successful Businesses." Work home. Expect something odd! Pacific, Oceanside, Calif.

**SPARETIME** Profits taking subscriptions, all magazines. Wholesale catalog free. Cassell Agency, Westfield 2, New Jersey.

#### FORMULAS, PLANS, ETC.

**SILVER** Plating fluid, formula, \$1.00. Krysto Products, Felton, California.

**MILLER'S** Modern manufacturing formulas make fast-selling products that get the business and pay. Fifty years supplying the best. Late literature free! Miller, Consulting Chemist, Tampa, Florida.

**AMAZING** Book! 10,000 formulas, 900 pages, \$3.98 postpaid. Guaranteed! Paulin, 109PD, Loudonville, Ohio.

**FREE** Formula catalog. Anything analyzed \$35.00. Western Chemical, Salem, Oregon.

**REAL** Manufacturing formulas. Lists free. Cummings, Chemist, Gordon Ave., Syracuse 4, N. Y.

**FORMULAS**: All kinds. Latest, best. Literature free. Kemikal, Park Ridge, Ill.

**TESTED** Formulas. Interesting descriptive booklet free. Pont, Box 635-PM, Terre Haute, Indiana.

**GENUINE** Manufacturing formulas. Latest. Literature free. Nelko, 3462-P Merchandise Mart, Chicago 54.

#### PLASTICS

**PLASTICS** Home-craft course for men and women. Tells and shows how to make hundreds of fast selling plastics products. All plastics and materials for 23 projects included in course. No special tools needed. Course pays for itself. Write for free booklet. Interstate Training Service, Dept. 3D, Portland 13, Oregon.

**PLASTICS**, Lucite, Plexiglas, acetates, Polyester-Fiberglas. Compare our retail-wholesale prices. Be sure you get our new value-packed, bargain-filled catalog. 10c. Airmailed 35c. Gem-O-Lite, Box 6862L, North Hollywood, California.

**NEW** Liquid casting plastic. Clear, colors. Embed flowers, insects, coins. Saw, drill, carve. Send 25c for Castolite Creations Manual and proved success plan showing how to make money at home. Castolite, Dept. D-101, Woodstock, Ill.

**DESIGNING**. Manufacturing plastic parts, jigs, signs, letters, etc. Free estimate. Harry Smith Specialties, Box 9378, Akron, Ohio.

LUCITE. Plexiglas. Any size sheets, masked. Square foot (12 x 12) cost, 1/16". \$1.20; 1/8", \$1.40; 3/16", \$1.75; 1/4", \$2.08. Include 10% postage. Almac Plastics, 600 Broadway, New York City.

LEARN Plastics at home. Small cost—Spare time. Dime brings sample plastic, three experiments, full details. Plastic Projects, Box 5151, Detroit 35, Mich.

PLASTIC. Sheets, rods, tubes, etc. Free list. Plastic Supply Co., 2901 N. Grand Blvd., St. Louis 7, Mo.

## CHEMISTRY

CHEMICALS, Supplies. Catalog 15c. Laboratory Sales, Box 161-T, Brighton, Mass.

AMAZING New book of science. Experiments, formulas and catalogue of laboratory supplies. Only 25c. National Scientific Co., Dept. 16, 2204 W. North Ave., Chicago 47, Illinois.

SECOND Printing, improved version, spectacular chemical fireworks manual. Contains complete setups, formulas, instructions on thermits, fulminates, explosive powders, etc. Still \$1.00 postpaid. Chemi-Technix Laboratories, 568V Riley, Buffalo 8, New York. Chemical questions answered.

NEW Idea chemical and apparatus outfit for home experimenting. Photo-scales, microscopes, chemicals, biological and laboratory supplies in small quantities. Catalog 25c. Established 1931. John H. Winn, 124A West 23rd Street, New York, N. Y.

CHEMICALS And apparatus for industrial, analytical, and private laboratories. Catalog 20c. Dept. M-50, Biological Supply Co., 1176 Mt. Hope Ave., Rochester 20, N. Y.

ILLUSTRATED Catalog: Chemistry, mineralogy, biology, 10c. Tracey Laboratories, Evanston, Illinois.

SPECTROSCOPE For quick chemical analysis \$3.00. Kutting Sons, Los Altos, Calif.

## AGENTS WANTED

MAKE Money spare time plus new car as encouragement bonus. No house-to-house canvassing required. Amazing 60 gauge nylons 3 pairs guaranteed 3 months or replaced free. Write Wilknit, 1734 Wash., Greenfield, Ohio.

SELL. Tie rod safety locks for automobiles \$3.25; trucks, 1 to 2 tons, \$4.85; larger, \$5.50. Give make and model. Reduce front end repairs, tire wear, prevent accidents, save lives. Add 35c for postage and mailing of sample. B F Manufacturing Co., Department 4, 104 Jenkins St., Houston 3, Texas.

NEW Plastic mending tape. Just press on! Repairs clothing instantly. Lightning seller. Samples sent on trial. Kristee 159, Akron, Ohio.

HOTTEST Seller ever! Get in on the ground floor! Huge profits await you as our agent selling full or part time new nationally advertised top quality Pennsylvania saw sets. Tempered steel saws for every use—all on one handle. Hacksaw, crosscut, frozen meat and bone saw, pruning saw, keyhole saw, dovetail saw. Tremendous value everyone can use—everyone wants! Sells on sight! Send for free illustrated catalogue. James R. Barnet Co., Dept. PM-4, Box 188, Wellesley Hills, Mass.

NEW Easy way to make money! Show friends new ideas in all occasion greeting cards, gift wrappings, home and gift items. Big profits. Experience unnecessary. Request feature samples on approval and free samples exclusive name imprinted stationery, gold imprinted items. New England Art Publishers, North Abington 812-C, Mass.

\$1 STARTS You in business. Sell fine \$1 ties. \$1.50 and up values only \$7.20 dozen, you make \$4.80. Send only \$1 for 2 sample ties. Catalog free. Philip's Neckwear, Dept. 127, 20 West 22nd Street, New York 10.

MAKE Money introducing world's cutest children's dresses. Big selection adorable styles. Low prices. Complete display free. Rush name. Harford, Dept. J-5341, Cincinnati 25, Ohio.

DRESSES Without cost. Big extra money. Just show Melville Frocks to friends, neighbors. Just send name, address, age, dress size. Write today. Melville Co., Dept. 7976, Cincinnati 25, Ohio.

AMAZING New hand cleaner. Trial 2½ pound can \$1.00. Bayco, Box 805, Pawtucket, R. I.

MAGAZINE Subscription agents. Wholesale commissions. Bonus. Qualified Publications, 451G Kingston, Brooklyn 25, N. Y.

BALLPOINT Pens \$7.50 gross; D.E. S. blades \$4.20 M; flashlight key chain \$2.25 dozen. Lutzker, 871A East 170th, New York City 59.

TERRIFIC Bargains—Profits! Used suits \$1.75, pants 35c, dresses 20c, shoes 20c. Operate from store, home, car. Free catalog. Superior, 1250-A Jefferson, Chicago 7.

BUY Wholesale thousands nationally advertised products at big discount. Free wholesale plan. American Buyers, 629-R Linden, Buffalo, N. Y.

BUY Wholesale, 25,000 items. Catalogue 25c. Matthews, 1472-B-6 Broadway, New York City 36.

BIG Money making opportunity. Exclusive line work uniforms. Jackets, pants, shirts, coveralls, advertising embroidered. Every business prospect. Outfit free. Master Div., Dept. 492, Ligonier, Ind.

FAST Profits—No investment. Plastic aprons, tablecloths, etc., 300 sure-fire items. We guarantee sales. Free information. Halliday Co., Dept. PM, 15 Pennington Ave., Passaic, N. J.

NEED Extra cash? Get it selling Blair's unusual line of household and food products. Every housewife a prospect. Send for samples free. Write Blair, Dept. 31LD, Lynchburg, Va.

SELL Perfumed stationery by mail, stores, homes. Sample, details free. Rienzi Press, 24-P North Seventh, Newark 7, New Jersey.

COMMISSION Salesmen to show novelty saw to hardware retailers. W. Ireland, Box 146M, Auburn, N. Y.

\$50.00 SELLING All occasional cards. On approvals. Diehl's, Buffalo 5, New York.

SELL Harmar's French fried popcorn to stores and taverns. Fast repeater. Harmar Products Co., Hammondsport, N. Y.

OVER 100% Profit selling new article for fishermen, travelers, homes and gifts, has 8 uses, 9 pound scale 36 inch replaceable tape measure, first aid kit contains razor blades for emergency operation, medicated bandages, 2 bottles for germicide and water purifying tablets, match striker, weighs 3½ ounces, retails for \$2.00. Sample, \$1.00 prepaid. Jiffy Specialty Mfg. Co., P.O. Box 3022, Fort Worth, Tex.

REJUVABRUSH—Makes paint-hardened brushes soft, pliable. Reusable, harmless, mild to hands. Guaranteed. Fast seller, wonderful profits. Amazing proof free. Chemtech Laboratories, 2845 South 34th Street, Milwaukee.

BIG Bonus profits taking magazine subscriptions. Details, Courier, 40-69G 97th Street, Corona 68, New York.

SELL Our 30 building maintenance products (waterproofing, cement hardener, floor mastic, etc.) to contractors, building superintendents. Flat commission. Territory. Haynes Products Co., Desk 7, Omaha 3, Nebr.

WHOLESALE Catalog. Nationally advertised appliances, cameras, watches, etc. Cam Co., 1717PM—58th St., Brooklyn 4, N. Y.

KILL Flies, insects (all kinds) instantly. For homes, restaurants, hotels, hospitals. Amazing (low priced) invention. Whirlwind seller. Tremendous profits. Walko Industries, Dept. 43-C, Highland Park, Ill.

ABSOLUTELY Free—Sales kit. Yours for the asking. Send postcard today requesting kit showing new line, belt buckles with your name or personal initials, cap badges, choice 3000 different emblems. Write Hook-Fast, Box 1425PM, Providence, R. I.

FREE Samples. Big profits showing amazing "Glow-in-the-dark" specialties. House numbers, pictures, plastic novelties, ashtrays, keyholders, religious and nursery objects, etc. Madison Plastics, 303 Fourth Ave., New York 10, N. Y.

SELL Popular Mechanics and all other magazine subscriptions. Free catalogue, supplies. Subscription Service Company, Dent. C, P.O. Box 2070, Birmingham, Ala.

'53 WHOLESALE Dealer kit on appliances, typewriters, recorders, cameras, giftware, etc. Free. Write Arrow Distributing, 154-B Nassau Street, New York.

BIG Profits selling sensational engine oil-vuer. Every motorist hot prospect. Details free. Rogers Automotive, Box 23, Station C., Pasadena, California.

MEXICAN Feather pictures. High profit! Fast sellers! Adelphi, Box 57-B, Bellrose 26, N. Y.

SELL Fast—79c Baby necessity. Big repeater. Baby Gay, Beaver Dam 8, Wis.

EXTRA Money. Easy-selling repeat attractive items; imprinted napkins, guest towels, new soap and towel sets. Also unusual fast-selling gift creations. For quick profits write for free samples. Nancy Lee Novelties, 22 Wooster Street, New York City.

MEXICAN Feather pictures. Sell on sight; 200% profit! Free details. Sample 20c stamps. (No coins.) Sylvia P. Aparado 9036, Mexico City.

CALIFORNIA Sweet smelling beads. Sensational sellers. Free particulars. Mission, 2328PM West Pico, Los Angeles 6, Calif.

COSTUME Jewelry will bring you fabulous profits, easy sales! Our terrific line includes popular-priced Coronation jewelry! Send for catalog and wholesale prices—for re-sale only! Penn Jewelry Co., Dept. P, 826 W. Lacka, Ave., Scranton, Penna.

## SALESmen—DISTRIBUTORS

WRITE 3 Words—Collect \$6.00 on 10-second demonstration to merchants. Write on glass with amazing magic crayon—Presto! 5 color advertising message takes fire—glows like brilliant neon. Three sales daily brings \$18.00 profit. Rush postcard for details. Complete sales kit, free! Maxilume Co., 125 W. Hubbard, Dept. CL-84, Chicago 10, Illinois.

IS \$210 A week worth a postcard to you? Then rush card with name and address for special free trial plan that sells amazing new automatic refrigerator defroster "like hot cakes!" Write to Mr. Lewis, D-Frost-O-Matic Corp., Dept. A-102, 173 W. Madison, Chicago 2, Illinois.

POSITIVELY Make \$50.00 a day and up selling brand new item going to every type of food and beverage store, factories, laboratories, hospitals, etc. Samples furnished. Utility Durawear, 53 West Jackson Blvd., Dept. PM-4, Chicago, Illinois.

AD Matches! Sell amazing designs—20, 30, 40 and 240-light book matches. Bigger spot cash commissions; every business a prospect. Low prices for high quality. Repeats. Start without experience; men, women; full, part time. Buy nothing! Sales kit furnished. Match Corp., Dept. PM-40, Chicago 22, Illinois.

EXCELLENT Commission—Sell interchangeable metal price markers and specialty signs. All stores prospects. 706 6th Ave., New York City.

ADVERTISING Book matches—Cash in on big demand; sell union label matches. Cuts for all businesses and political parties. Free powerhouse selling kit, low prices, protection guaranteed on repeat orders. Cash commissions. Superior Match Co., Dept. M-453, 7530 Greenwood, Chicago.

SEA Shells. Sell stores, 18 package display easel. Sample \$2.25. Howe, 2975 S.W. First St., Miami, Fla.

BARGAINS—Terrific savings. Job lots. Close-outs! Also save up to 50% on dry-goods, clothing, hosiery, notions, drugs, toiletries, gifts, jewelry, television, etc. 2000 items. Send 25c for wholesale bargain catalog with special "get acquainted" offer which includes free \$1.00 merchandise certificate. Reliable Jobbers, 311-B North Desplaines, Chicago 6.

SELL Big money maker to men and women. Easy handwork makes fast-selling useful articles. Sample free. Sun-made Company, Brockton 64, Mass.

YOUR Own business—Used suits \$1.50, overcoats 65c, mackinaws 35c, shoes 12½c, ladies coats 30c, dresses 15c. Enormous profits. Catalog free. Moro, 558-AA Roosevelt, Chicago 7.

SCHOOL Seniors—Earn sensational profits selling classmates America's most beautiful graduation name cards. Largest selection. Outsell all others. Free sample kit. Printcraft, Dept. M, 1509 Maple St., Scranton 5, Penna.

AGENTS — 300% Profit selling genuine gold window letters; stores and offices. Free samples. Metallic Sign Letter Co., 431-D North Clark, Chicago.

\$50 WEEKLY Selling finest razor blades, other items. Free details. Edisans, Box 274, Far Rockaway, N. Y.

**GOLD** Lacquered and silver sign letters. Windows, doors, trucks. Standard sizes. Penny and up samples. **Atlas-P.** 544 West 79th, Chicago 20.

**EXCELLENT** Sideline for printing and advertising salesmen. Decalcomania name plates in small quantities. Great demand. Also, make money with our line of automobile initials and sign letters. Free samples. "Ralco" XL-Roxbury, Boston 19, Mass.

**AGENTS:** Stamping names on key protectors. Sample 25c. Stamping outfits, checks, social security and name plates. **Hart Mfg. Co.** 303 Degraw St., Brooklyn, N. Y.

**SALESMEN.** Distributors, fast selling costume jewelry direct from factory. Big picture catalog, free. **Pickcraft**, M19 Bank, Attleboro, Massachusetts.

**BIG** Profits selling ties (\$2.00 values), \$6.50 dozen. Free catalog. **Empire Cravats**, 648 Broadway, New York 12.

**PRINTING,** Salesbooks, envelopes. Free illustrated catalog. **Ersco**, Dept. FM, Bronx 72, New York.

**BE A MONEY MAKE.** Use your home as magazine headquarters. Liberal commissions. No experience. No capital needed. Everything furnished. Write for free catalog. **McGregor Magazine Agency**, Dept. 500A, Mount Morris, Ill.

**SLENDERIZING.** Massaging home unit for men—women. Tremendous market. Free details. **Gyro-Belt**, 6920 Market, Upper Darby 7, Pennsylvania.

**NYLON Stockings** all over the world. **Rich Supply**, 215a W. 98th, New York 25.

**NEW Jobs open in selling!** Send name, address for five free issues of Opportunity Magazine's money-making guide, listing hundreds of companies who'll pay you well, full or part-time. No experience needed. Opportunity, 28 E. Jackson, Dept. 17, Chicago 4, Ill.

#### HELP WANTED

**NYLONS** At wholesale prices. **Fields Hosiery**, 99-G Chauncy, Boston, Mass.

#### EDUCATIONAL AND INSTRUCTION

**STRUCTURAL Drafting** and design. Study at home. Spare time. Information free. **Roth Institute**, 277 Park Ave., Youngstown 4, Ohio.

**WANT U. S. gov't job?** Men—women, 18-55. Start high as \$316.00 month. 35,000 jobs open! Experience often unnecessary. Qualify now! Get free 32-page book showing jobs, salaries, requirements, sample tests. Write today: **Franklin Institute**, Dept. Y-24, Rochester, N. Y.

**USED Correspondence courses** and educational books bought, sold, rented. Catalog free. **Educational Exchange**, Summerville, Ga.

**INCREDIBLE!** Become mental superman overnight! Free booklet! **Bijou**, Box 1727-M4, Hollywood 28, California.

**GET Into politics!** Brand new course tells how. Get into the big money class. Details free. **Realfact Publishers**, Post-office Box 137-A, New York 51, New York.

**MASTER** Those worries, fears and problems with our amazing home-study plan of "Human Behavior Control." Many helped. Write for unusual free lecture in plain, sealed wrapper, without obligation. **Personal Psychology, Inc.**, Box 1924-E, Louisville 1, Kentucky.

**I. Q. Test**—New self-grading, reveals intelligence, enables you to capitalize on your strong and weak points for success in social and business life. Test yourself, family, friends. \$1.00 per test. Includes grading and evaluation analysis. **I. Q.**, 2207 Park Drive, Los Angeles, California.

**BECOME** An optician. Profitable lifetime business. Start at home. Fully illustrated volume, "Optician Simplified" with experimental lens set only \$15.95 complete. Guaranteed. Literature available. **Associated Enterprises**, Dept. D2, 357 Springfield Street, Chicopee, Mass.

**IT'S Fun learning a language by Linguaphone.** At home, in leisure time, quickly, easily you listen and learn to speak Spanish, French, German, Russian, Japanese, Norwegian—29 languages by Linguaphone World's Standard Conversational Method. Save time, work, money. Send for free book. **Linguaphone Institute**, 8304 Mezz., Rockefeller Plaza, New York 20.

**HIGH School**—No classes. Study at home. Spare time. Diploma awarded. Write for free catalog HF-31, Wayne School, 2527 N. Sheffield, Chicago 14, Ill.

**RADIO Job?** FCC licenses quickly through our correspondence course. Many employed graduates. Free brochure. **Grant-ham Radio School**, 6064 Hollywood Boulevard, Hollywood 28, California.

**TIME** Travel past or future—Your own personal time machine. Tested, approved by hundreds. Send 25c for complete details. **Eidetic Foundation**, Box 345X, Fairhope, Alabama.

**WANT A diesel job?** New opportunities to increase income. Higher pay. More money. We can help you qualify. Tools. Shop method home training. Write today! **Diesel, Tractor, Heavy Equipment Division, Interstate Training Service**, Dept. 3D, Portland 13, Oregon.

**PRACTICAL Nursing**—Learn easily at home, spare time. Big demand, good earnings. High school not necessary. Write for free facts. **Wayne School**, Dept. FG-16, 2525 Sheffield, Chicago 14, Ill.

**WELDING** Training pays at Hobart Welding School, Box M-431, Troy, Ohio. VA contract. Best equipment. Catalog free.

**FOR** An extremely profitable lifetime business, operate a collection agency. Quickly learned. Write Cole Associates, Syracuse 2, N. Y.

**3800 USED Correspondence courses.** Catalog \$1.00. 3-cartoonist \$3.95. EG, Elmsford, N. Y.

**RELIGIOUS Homestudy degree courses!** Free bulletin! Midwestern Bible School, 517 Merchants Bank Building, Indianapolis, Indiana.

**PIANO Tuning** pays. Learn this profitable profession at home. Our Tonometer and mechanical aids make learning easy. No knowledge music necessary. Diploma granted. Largest and oldest school—55th year. G.I. approved. Write for booklet. **Niles-Bryant School**, 78 Bryant Bldg., Washington 16, D. C.

**NEW Analytic**, guaranteed method teaches algebra instantly. Send \$1. Ziembeck, 6123 Orchard, Dearborn, Mich.

**HOME Study course**, drugless therapy. Free literature. **Institute of Drugless Therapy**, Tama, Iowa.

**MEDICAL Laboratory technicians** in great demand. We train you in your own home. Catalogue free. **Imperial Technical Institute**, Box 973-J, Austin, Texas.

**SECRET Investigation.** Experience unnecessary. Investigators particulars free. **George Wagner**, M125 West 86th, New York 24.

**INVESTIGATOR Training.** Phillips Secret Service System, 1917-B North Kenneth, Chicago 39.

**BE A real estate broker.** Study at home or in classrooms in leading cities. Write for free book today. **Weaver School of Real Estate**, 304 Law Bldg., Kansas City, Mo.

**BOOKKEEPERS!** Increase your earnings! Operate your own simplified "Dollar-A-Week" bookkeeping and tax service. Full or spare time. Details free. No obligation. **Ellis**, Box 200, Cedar Grove, North Carolina.

**USED Correspondence courses** and books sold and rented. Money back guarantee. Catalog free. (Courses bought) **Lee Mountain**, Pisgah, Alabama.

#### PLAYS, STORIES, MANUSCRIPTS

**WRITE** Science fiction. 32 magazines want stories, articles. Published authors help you. Revision, ghostwriting. All subjects, any market. Radio, screen, television, screen. **H. Ballenger**, 1509-M Crossroads of World, Hollywood, California.

**SECRETS** Of getting published. Send \$2. **Krishnar Institute**, 1912 Lincoln-Park-West, 215-PA, Chicago 14.

**NO Luck** finding a book publisher? Write for free Booklet PM. **Vantage Press**, 120 W. 31, New York.

**BEGINNING Writers:** Get \$1 to \$20 checks daily writing simple children's stories, articles, poetry in your sparetime. Experience unnecessary. Our instructions reveal how. Details free. **W. Herman**, 7016 Euclid, Cleveland 3, Ohio.

#### SPECIAL SERVICES

**LETTERS** Remailed 25c. "Mail Me From St. Louis," Box 510-M, St. Louis 3, Mo.

**NEW York City** remails 25c. Box 769, Glenwood Landing, Long Island, N. Y.

**4 TAHITI Postcards.** Remailed free. \$1.00. **Yves Jarraillion**, Poste Restante, Papeete, Tahiti.

**NEW York** remail, 25c each. Schraut, 8064—162 Street, Jamaica 2, New York.

**EXOTIC Hawaii;** letters remailed, 50c. 3—\$1.00. Color viewcards, 4—\$1.00. **Webco**, Box 696, Kekaha, Hawaii.

**PORLAND Letters** remailed 25c coin each. Brockway, 228 N.W. 22nd Ave., Portland, Oregon.

**SURPRISE Friends**—We mail "Redwoods" scenic card, remail letters 25c. Box 1235, Santa Rosa, Calif.

**PORLAND**, Postmark 35c, 4 for \$1.00, reliable. Cul, 4523 N.E. Davis, Portland, Ore.

**INFORMATION** On any matter. Ferguson Research, 116-14 141 St., South Ozone Park 36, N. Y.

**LETTERS** Remailed 25c. Morris Petterson, Box 8734, Houston 9, Texas.

**DETROIT** 31, Michigan, Box 425, Myers. Remailings 25c. Confidential services reasonable.

**YOUR Questions** answered. Research; business; social. Any subject. Confidential. Write Dougherty, Box 88J, Van Nuys, California.

**NEW York address** for your mail. J. Reiley, 2013 Boston Rd., New York 60, N. Y.

#### CARTOONING, COMMERCIAL ART, SHOWCARD WRITING, SIGN PAINTING

**CARTOONISTS:** Amateur, professional. Prepare for animation with Max Fleischer's plan. Write Vera Coleman, Lincoln Building, New York, N. Y.

"**HOW To Make Money With Simple Cartoons**"—A book everyone who likes to draw should have. It is free; no obligation. Simply address Cartoonists' Exchange, Dept. 94-C, Pleasant Hill, Ohio.

**SURPLUS Bargain.** Ready cut 6" wood letters, 3/4" thick, for signs, displays, etc. Ready for finishing. 20c ea. Minimum order \$2.00. (Agents wanted.) **Rex**, 94-88 218th St., Queens Village, N. Y.

**PAINT Signs** for profit. Biggest complete course, with 324 illustrations some in colors, \$5 postpaid. Descriptive circular free. **Matthews**, 2325 Cass, St. Louis 6, Mo.

**SELL Your cartoons!** Nearly 300 magazines pay \$5 to \$200 each. List and instructions \$1.00. Information free. **Sayler**, 2444-A 33rd Street South, St. Petersburg 7, Fla.

**SIGN Trades** pay well, learn at home. **Signways**, Knox, Indiana.

**CHALK Talks.** Laugh producing program, \$1.00. Catalog 10c. **Balda The Cartoonist**, Oshkosh, Wisconsin.

**9 ALPHABET**, 3 Numerical pattern sets and raised wood letter catalog, \$1.00. **Sign Letter Distributors**, P.O. Box 101, Mineola, N. Y.

**LEARN Sign painting** at home. Test lesson free. **Ben Kerns**, Box 812-P.M., Greenville, S. C.

#### ADVERTISING AGENCIES, LETTER WRITERS, FOR ADVERTISERS

**FRESH Mailing lists**, \$5, 1000 up. **Amiss**, Box 101, Belle Fourche, South Dakota.

**RESULTS!** That's what we offer classified, mail order advertisers in our 1953 directory (full of ideas, magazine and newspaper rates). It's free. **BT Nationwide Advertising Service**, 2108 Payne, Cleveland, Ohio.

**ADVERTISE:** 24 Words, 100 Canadian newspapers \$5.50. Lists free. **Advertising Bureau**, 10511-C Springfield, Chicago 43.

**ADS Placed** in out of town newspapers and magazines. Low rates. Catalogue free. Ideas that pay. **Baker Advertising Agency**, Successors **Ankrum Agency**, 189 W. Madison, Chicago 2.

**ADVERTISERS!** Reach nearly 18,000,000 readers, 25 Sunday national key newspapers, 18 words, \$59.00. "Terrific pullers," 20 popular newspapers, \$11.50. Free booklet. Special—One inch display 2-821,198 circulation. \$51.10. **Newmark's Advertising Agency**, (Established 1893), 217-7th Ave., New York 11.

**MAILING Lists:** \$5.00-1000 up. Write **Dixie Service**, King, N. C.

FREE Copy, layout service. Mailorder ad, 1,700,000 nationwide circulation, \$27.30 inch. 24-word classified, 20 big Sunday newspapers, \$30.00. Advertising ratebook free. Chicago Advertising Agency (established 1900). Chicago 4.

## RUBBER STAMPS AND OFFICE SUPPLIES

UNEQUALLED Value! Send \$1. Handy package 5 quality, indexed rubber stamps everyone needs. "Paid," "Air Mail," "For Deposit Only," "Personal," "Special Delivery." Postage paid. Handy Stamps, 11106 Estacado, Dallas, Texas.

POSTAL Brings catalog of rubber stamps any size, style or quantity at real money saving prices. Esco, 43 Print, 8 Holt, Dayton-7, Ohio.

3 LINES Inked pad \$1.00. Indelible ball-point pen (wash fast) \$1.00, 6 for \$5.00. Signature stamp \$2.35. Rubberpress, 1252 E. 75, Chicago 19, Ill.

RUBBER Stamps, printing. Catalog free. Morey's, 2529 Roosevelt, Redwood City 4, Calif.

RUBBER Stamps. Send for catalog. Excello, Box 500, Shreveport, Louisiana.

## TYPEWRITERS, DUPLICATORS, OFFICE DEVICES

TYPEWRITERS. Adders, filing cabinets, office equipment. Wholesale, retail catalog 25c. Returnable. Eskay, 718 Flushing Ave., Brooklyn 6, N. Y.

RECONDITIONED Typewriters, printing devices, office machines, equipment. DixieGraph, King, N. Car.

## PRINTING, MULTIGRAPHING, MIMEOGRAPHING GUMMED LABELS

250 HAMMERMILL 8½x11 Letterheads \$1.50; 1000 \$5.00. Woodprint, Romeo, Michigan.

EMBOSSED Cards. Samples 5c. Pen-nala, 338 West 102nd, Los Angeles, Calif.

1000 6x9 CIRCULARS \$6.50. Kittrell, Box 1643, Washington, D. C.

PERSONALIZED Stationery, matching envelopes, \$1 box postpaid. Benton Printing, 463 Crane Blvd., Los Angeles 65, Calif.

LETTERHEADS, Envelopes, statements \$1.00—hundred. Satisfaction guaranteed. Earl Enterprises, 208 Florida Ave., Jacksonville 2, Fla.

PRINTING That pleases. Letterpress, offset. Send copy for estimate. Mercury Press, Box 69M, Marengo, Iowa.

PROGRESSIVE Business printing. Prices, samples, free. Progressive, 400 Wooster, Akron 7, Ohio.

100 LETTERHEADS, 100 Envelopes \$1.50 postpaid. Angel Gonzalez, 945 Fox Street, Bronx 59, N. Y.

LETTERHEADS, Envelopes, 125 each—\$2.00. Roosevelt Press, 725-N Lawndale, Chicago.

TWO Color 8½x11 letterheads, 500—\$3.50. Samples. D'Yarmett Printing, Newark, Ohio.

1000 EMBOSSED Business cards \$3.50. Ortiz, 1050 Fox Street, New York 59.

500 GUMMED Address labels, ¾x2. 50c, with red border \$1.00. We print anything you need. Alprinco, Box 307, Atchison, Kansas.

100 ENVELOPES Or letterheads, \$1.00. Salesbooks, toy guns. Broadbrook, Batsford, Conn.

100 LETTERHEADS (8½ x 11 Printed) \$1.00 postpaid. Envelopes same. Race Printers, Hudson, New York.

MIMEOGRAPHING — Reasonable. Any copy. Mailers Service, Box 606-B, Chicago 90, Ill.

100 8½x11 LETTERHEADS And 100 envelopes \$2.00 postpaid. Fast service. Samples free. Catalpa Press, 5519 N. Clark, Chicago 40, Illinois.

1000 THIN Plate business cards, any color ink, \$4.75 postpaid. Mackay Printing Service, 642 Eddy, San Francisco, California.

OFFSET Printing, letter service. Prices, samples free. Planet, 223B Chamberlain Bldg., Chattanooga 2, Tenn.

1000 EMBOSSED Business cards. \$3.95 prepaid. Free samples. Earl Radaker, Anderson College, Anderson, Indiana.

1000 BUSINESS Cards \$2.50 prepaid. Samples free. Reliable Print Shop, 905 E. Jefferson, Louisville 6, Ky.

1000 LETTERHEADS Or statements, 5½x8½, \$5.95 postpaid. Samoset Press, Plymouth, Mass.

5000 6½x11 ENVELOPES Printed \$3.10 per thousand. 1000 embossed business cards \$3.95. Free samples. Michel, Central Village, Conn.

MIMEOGRAPHING — Letters, pricelists, formulas, instructions. Lowest prices. Lem's Letter Shop, 5710 Stanton, Detroit 8.

500 3½x2½ FOUR Line gummed stickers 50c. Red border \$1.00. Moritz Printery, Saginaw, Mich.

BUSINESS Printing. Samples, prices free. Howprint, 723-M Eunice, Webster Groves 19, Missouri.

DRAWINGS And cuts; also offset printing. Cressmann, Washington, New Jersey.

## PRINTING OUTFITS AND SUPPLIES

MAKE Your own self-molding rubber printing cuts. Plexirubber, Argyle 1, Wis.

KELSEY Printing press owners, send size for information. Your advantage. Used Machinery, Delaware, Ohio.

PRESSES. Type, cabinets, supplies. List for stamp. Lincoln Press Company, 220-Q Hartwell, Fall River, Mass.

DO Your own printing. Save money. Simple rules. We supply everything. Print for others; good profit. Raised printing like engraving too. Have home shop. Details free. Kelsey Presses, V-11, Meriden, Connecticut.

PRESSES, Supplies, paper. Catalog 10c. Custom, Box 211-P, Springfield, Missouri.

PRINTING Presses, type, supplies. Lists 3c. Turnbaugh Service, Loysville, Penna.

## PATENT ATTORNEYS

INVENTORS: When you are satisfied that you have invented something of value write me, without obligation, for information as to what steps you should take to secure a patent. Write Patrick D. Beavers, Registered Patent Atty., 936 Columbian Bldg., Washington 1, D. C.

HERMAN Lewis Gordon, registered patent attorney. Patent investigations and opinions. Warner Building, Washington 4, D. C.

INVENTORS: Learn how to protect your invention. Unless the inventor is familiar with patent matters, he should engage a competent registered patent attorney or agent to represent him. We are registered to practice before the U. S. Patent Office and prepared to serve you in handling your patent matters. "Patent Guide for the Inventor" containing detailed information concerning patent protection and procedure with "Record of Invention" form will be forwarded to you upon request—without obligation. Clarence A. O'Brien & Harvey Jacobson, Registered Patent Attorneys, 31B-D District National Building, Washington, D. C.

INVENTORS—If you consider your invention to be something of importance, take steps to protect it with a United States Patent which gives you the right to exclude others from making, using and selling your invention as claimed. "Patent Protection for Inventors" outlines steps to take to secure patent protection. Mailed promptly without obligation. Victor J. Evans & Co., Merlin M. Evans, Registered Patent Attorney, 831-D Merlin Building, Washington 6, D. C.

INVENTORS—If you believe you have an invention, you should find out how to protect it. The firm of McMorrow, Berman & Davidson with offices in Washington, D. C., is qualified to take the necessary steps for you. Send for copy of our patent booklet "How to Protect Your Invention." We will also send you an "Invention Record" form. No obligation. They are yours for the asking. McMorrow, Berman & Davidson, Registered Patent Attorneys, 134-E Victor Building, Washington 1, D. C.

PATENTS — Irving L. McCathran, 315 McLachlan Bldg., Washington 1, D. C. Registered Patent Attorney.

PATENTS. "Proof of Invention" free. E. E. Vrooman, Registered Patent Attorney, 507 McKim Building, Washington 5, D. C.

INVENTORS: Without obligation, write for information explaining the steps you should take to secure a patent. John N. Randolph, Registered Patent Attorney, 203 Columbian Bldg., Washington 1, D. C.

INVENTORS: Without obligation, write for information explaining the steps you should take to secure a patent on your invention. John N. Randolph, Registered Patent Attorney, 202 Columbian Bldg., Washington 1, D. C.

C. A. Snow & Co.—M427, Snow Building, Washington 1, D. C. Registered Patent Attorneys. Write for information.

"INVENTOR'S Guide" free. Frank P. Ledermann, Registered Patent Attorney, 154 Nassau Street, New York.

REGISTERED Patent attorney offers services. Sanders, 6430 Evans, Chicago 37, Ill.

INVENTORS — For "Invention Record" form, contact Carl Miller, Registered Patent Attorney, Woolworth Building, New York.

CANADA—Ramsay Company Registered, 273 Bank Street, Ottawa, Canada.

## FOR INVENTORS

INVENTORS—If you believe you have an invention, you should find out how to protect it. The firm of McMorrow, Berman & Davidson with offices in Washington, D. C., is qualified to take the necessary steps for you. Send for copy of our patent booklet "How to Protect Your Invention." We will also send you an "Invention Record" form. No obligation. They are yours for the asking. McMorrow, Berman & Davidson, Registered Patent Attorneys, 134-D Victor Building, Washington 1, D. C.

INVENTORS: Learn how to protect your invention. Unless the inventor is familiar with patent matters, he should engage a competent registered patent attorney or agent to represent him. We are registered to practice before the U. S. Patent Office and prepared to serve you in handling your patent matters. "Patent Guide for the Inventor" containing detailed information concerning patent protection and procedure with "Record of Invention" form will be forwarded to you upon request—without obligation. Clarence A. O'Brien & Harvey Jacobson, Registered Patent Attorneys, 31A-D District National Building, Washington, D. C.

INVENTORS—This firm is registered to practice before the United States Patent Office and is available to assist you in the preparation and prosecution of your patent application. "Patent Protection for Inventors" booklet containing detailed information and steps to take toward patent protection will be sent upon request. No obligation. Victor J. Evans & Co., 832-D Merlin Building, Washington 6, D. C.

INVENTORS—Send for free patent information book and inventor's record. Registered Patent Attorney. Associate Examiner, Patent Office 1922-29; Patent Attorney & Advisor, Navy Department 1930-47. Gustave Miller, 43A Warner Building, Washington 4, D. C.

INVENTIONS Properly handled pay off. Free literature. Inventor, Doniphon, Mo.

TURN Your ideas into money. Garcia, 592 "A," Clearwater, Florida.

SEARCHES—Put your patent searches in the hands of a registered patent attorney or agent, as he qualifies to give a worthwhile patentability report. Record of invention form upon request and information on patent protection. Patrick D. Beavers, Registered Patent Attorney, 936 Columbian Bldg., Washington 1, D. C.

NEED Help, inventor? Send name for free information. Stark Co., Grafton 1, Wisconsin.

INVENTORS! For "Copyright, Design and Patent Guide" contact Mr. Metzler, 11 West 42nd, New York 18.

PATENT Pending. No attorney required! 21-page instruction book sent on approval. Paladin Publications, 622-A Sheraton Bldg., Washington 5, D. C.

CASH For your idea, 280 manufacturers need inventions, patented or unpatented. List free. Invention Bureau, 208M Clinton, Oak Park, Ill.

"INVENTOR'S Guide" free. Frank P. Ledermann, Registered Patent Attorney, 154 Nassau Street, New York.

INVENTORS — For "Invention Record" form, contact Carl Miller, Registered Patent Attorney, Woolworth Building, New York.

INVENTORS: Without obligation, write for information explaining the steps you should take to secure a patent on your invention. John N. Randolph, Registered Patent Attorney, 202 Columbian Bldg., Washington 1, D. C.

INVENTORS: Without obligation, write for information explaining the steps you should take to secure a patent. John N. Randolph, Registered Patent Attorney, Dept. 40A, 631-E St. N.W., Washington 4, D. C.

INVENTORS: If you have an invention for sale, patented or unpatented, write Institute of American Inventors, Dept. 40A, 631-E St. N.W., Washington 4, D. C.

PATENT Searches \$5.00. Reports airmailed within 48 hours. Free protection forms. Write Miss Ann Hastings, P.O. Box 176, Washington 4, D. C.

PATENT Searches \$5.00. 48-hour service. Free record of invention. Write Raymond L. Smith, Patent Searcher, 622 Sheraton Building, Washington 5, D. C.

PATENT Searches, \$5.00, including patent copies. Same reliable searches as conducted for patent attorneys. Promotion and marketing services also offered. Free protection forms, 48 hour service. Patent Service Institute, 945A Pennsylvania Avenue, Washington 4, D. C.

PATENT Searches \$5.00. 48-hour airmail service. Protection forms free. Patent drawings prepared. Write Patent Engineering Service, 711 14th Street N. W., Washington 5, D. C.

## INVENTIONS WANTED

WELL Established machinery manufacturer desires produce and sell marketable items on royalty basis. Write giving full-particulars. Department D, Box 531, Owensboro, Kentucky.

PROGRESSIVE Reputable corporation wants inventions or ideas on  $\frac{1}{4}$ "- $\frac{1}{2}$ " electric drill attachments. Will purchase outright or on royalty basis. Give complete data in confidence. The Drilo Corporation, 201 E. Carson St., Pittsburgh 19, Penna.

INVENTIONS Wanted. Patented, pending only. Inventors Patent Exchange, Hartford 1, Conn.

INVENTIONS Wanted. Patented: unpatented. Tremendous manufacturers lists. Global Marketing Service, 1404 Mitchell, Oakland 1, California.

MARKETING Aid — Nation wide. Patented, patent pending. Booklet free. Market Contacts, 719-A2 Magnolia, Tupelo, Miss.

INVENTIONS Wanted. Patented or patent pending. 21 years experience promoting inventions. National Service Bureau, 3120 Meramec, St. Louis 18, Mo.

INVENTORS: Hundreds of manufacturers have requested our assistance in locating marketable new products. Complete information free. Institute of American Inventors, Dept. 40-D, 631-E St. N.W., Washington 4, D. C.

INVENTIONS Promoted. Patented or unpatented. Established 1911. Write Adam Fisher Company, 61 Enright, St. Louis, Mo.

CASH Buyers for ideas and inventions. Write National Inventors Institute, 4097 East 131st St., Cleveland 5, Ohio.

## PATENTS FOR SALE

COLORFUL, Decorative, automobile lighting, passes requirements of most states, will sell or consider partner. Complete details with picture for \$1.00 to cover cost. Meredith Faidley, Box 359, St. Francis, Kansas.

INVENTORS: Test the commercial value of your patented or unpatented inventions, quickly and inexpensively. Write for free information. Institute of American Inventors, Dept. 40-B, 631-E St. N.W., Washington 4, D. C.

PATENT, #2,529,222. Rotary vending machine. Large capacity. Small counter space, large market, royalty. Box 124, New Bloomfield, Penna.

## MANUFACTURING

MODELS — Small lot manufacturing. Metals, plastics, etc. Milburn, Burlington, Kentucky.

## MODELS, MODEL SUPPLIES

EXPERIMENTERS: Small matched gears, 55 and 10 teeth, 48 pitch. 50c per set. Schutte Machine Co., 184 Stanton Ave., Akron 1, Ohio.

POWER Models. Unusual steam, gasoline and traction engines. Metals, tools, accessories. Catalog 50c. Chas. Cole, Ventura, Calif.

FAMOUS Catalogs: Ships, fittings, 169 pages 50c; world's tinplate trains, 148 pages 50c; HO trains, 140 pages 50c. Each includes 50c refund coupon. Collectors soldiers 25c. Polk's, 314 5th Ave., New York 1.

ANTIQUE Vehicle kits. Buckboard \$1.00. Free folder. Tontz, Elsinore 9, Calif.

SHIP Models—Most complete line in New England. Kits, fittings, plans, books, tools, engines, motors. Illustrated catalog 25c. James Bliss & Co., Inc., 342 Atlantic Ave., Dept. SM, Boston 10, Mass.

THREE Model railroad catalogs 10c. Shannon's, 503 Franklin, Nutley, N. J.

SHIP And yacht model fittings; blueprints. Send 25c for illustrated catalog No. 28—listing hundreds of items. A. J. Fisher, 1002-1 Etowah Ave., Royal Oak, Mich.

STEAM Locomotives,  $\frac{1}{2}$ ", 1",  $\frac{3}{4}$ ",  $\frac{1}{2}$ "  $\frac{1}{4}$ " scales. Castings, rail, steam fittings! Thorough drawings with instructions. Catalog 50c. Little Engines, Wilmington, California.

ILLUSTRATED Lionel catalog, 10c; American Flyer, 10c; H. O. gauge, 10c. Ben's PM Dept., 134 North Dearborn, Chicago 2.

BALSA Wood. Grade AAA. Free sample, price list. Sig Mfg. Co., Montezuma, Iowa.

## HOME CRAFTSMEN

KNOCKDOWN Cedar chests and lumber. Free price list. Bedford Lumber Company, Shelbyville, Tennessee.

HANDICRAFTERS! Needlecrafters! Sell your handiwork profitably. Free details. Thompson, Loganville PM, Wisconsin.

"TOPS" In everything for leathercraft. Lowest prices. Genuine "Craftool" stamps. Catalog 10c. Crown Leather Company, 22 Spruce Street, New York 38.

LEATHERCRAFT Is fun especially now. Make your own leather belts, billfolds, purses, hats, dresses, blouses from durable low-priced leathers. Supplement your spring wardrobe with leather articles. Free catalog. Tandy Leather, Box 397C, Tulsa, Oklahoma.

90 ALL New, full size lawn ornament and novelty patterns, up to 20" high. Only \$1.00. Mastercraft 42M, 7041 Olcott, Chicago 31, Illinois.

SOLID Walnut, cherry, maple, cedar, basswood and cedar closet lining. "A board or a carload." Free factory price list. Elkins Lumber & Supply Co., Harrison, Ark.

PLASTICS Home-craft course for men and women. Tells and shows how to make hundreds of fast selling plastics products. All plastics and materials for 23 projects included in course. No special tools needed. Course pays for itself. Write for free booklet. Interstate Training Service, Dept. 3D, Portland 13, Oregon.

LEATHERCRAFT For pleasure or profit. Make easy-to-assemble purses, belts, gloves, woolskin toys, 100 other items for gifts or to sell. Send 10c today for big catalog. Largest leathercraft stock in U.S. J. C. Larson Co., 820 S. Tripp, Dept. 2950B, Chicago 24.

LEATHERCRAFT Tremendous stock of leather, tools, supplies, and kits. In leather business over forty years. Send 10c for big catalog. Sax Bros., 1111 No. 3rd, Dept. PM4, Milwaukee 3, Wisconsin.

OUR Biggest leather and craft catalog yet! 1000's of items. Send 25c (refunded with first order). Russo Handicraft Supplies, Dept. 16C, 245 S. Spring, Los Angeles, California.

10 FULL Size shelf patterns 35c. Connolly's, 825 Randolph, St. Paul 2, Minn.

LAMP Size cypress knee \$1.00. Cy Products, Ella Street, Lafayette, La.

KNOTTY Pine for home craftsmen. Send 35c for prices, plans. Box 3, Elliot, Maine.

16 NEW Lawn chairs, 22 picnic tables, benches, trellises, etc. All 38 plans with necessary full size patterns. \$1.00. Mastercraft 43M, 7041 Olcott, Chicago 31, Ill.

LEATHER Tools, lacings, supplies. Free catalog. National Handicraft, 199 William St., New York 7.

MONEY From your workshop ideas for toys, games, novelties. Write Hendrickson, Argyle 1, Wisconsin.

CLOGGED Drains opened by new powerful chemical called Sur solvent. Removes grease, soap, tree roots, etc., without expensive digging and electric rodding machines. Simple to use. Mix with water and pour down sink. Postal brings free details. Electric Sewer Cleaning Co., Allston 34, Mass.

HOBBYISTS, Homemakers and handymen—Send for free illustrated catalog. Highbridge Co., 2450 Walton Ave., New York 68, N. Y.

BIRDHOUSES. 20 Proven plans for attractive homes and feeders. \$1.00. Birdbox, Dept. M-4, 159 Clyde, Baltimore 27, Maryland.

COWHIDE: \$1.50 Ft.—All colors. Approximate 9 ft. shoulder, 10% less. Bon Mark Mercantile Co., Box 51, Oakland Gardens, Flushing 64, Long Island, N. Y.

89 FULL Size jig saw patterns of beautiful shelves, ornaments, toys, novelties. Plus "How, Where to Sell." Only \$1.00. Mastercraft 44M, 7041 Olcott, Chicago 31, Illinois.

WOODWORKERS! Don't guess! Obtain perfect 90 and 45 degree cuts the first time on your circular saw. Get this new device that adjusts on saw blade. \$2.00 postpaid. Cirsangle, 5636 Lake Park Ave., Chicago, Ill.

STERLING Silver neckchains \$3.60 dozen. Silver plated \$1.75 dozen. Key chains \$6.75 1000. Ten assorted samples (including above) \$1.00 ppd. Religious medals, bracelet charms, circular. Atlantic, 2799 Fulton, Brooklyn 7, N. Y.

LAWN Ornament patterns! Giraffe family (cute baby) 50c. Paul's Plans, 2233A North 35th, Milwaukee 8, Wis.

93 "ORIGINAL Idea" jig saw patterns \$1.00. Professional drawing, quality printing. Full size shelves, toys, lawn ornaments, novelties. Walker Studio PM-4, 4343 Lindell, St. Louis 8, Mo.

LEATHERCRAFTERS: Illustrated catalog shows everything you need 10c. Art Leather, 411 Joseph Ave., Rochester 5, N. Y.

STERLING Silver jewelry. Free illustrated directions for buttons, earrings, cufflinks you can make without soldering. Write for leaflet P. Craft Service Department, Handy & Harman, 82 Fulton Street, New York 38, N. Y.

BIRD Houses—15 Unusual full size patterns, 50c. Steiner, 103 McGraw, Ithaca 11, N. Y.

GRANDFATHER And hall clock movements, cases and dials at low direct factory prices for craftsmen. Wills Chime Clock Co., 237 S. Ellwood Ave., Baltimore, Md.

BUY Wholesale nationally advertised power, hand tools, thousands other products at big discounts. Free wholesale plan. American Buyers', 629-PP Linden, Buffalo 16, N. Y.

JIGSAW Owners attention! Start earning money at home cutting out wooden novelties and souvenirs. Write H. Cook, Dept. A, 4407 S. Normal Ave., Chicago 9, Ill.

LAMPCRAFTERS — Cypress knee debarked for lamp \$1.00. Lamps, Box 218, Oakdale, Louisiana.

LEATHER And supplies. Illustrated instructive catalogue 25c. Top quality, low priced products. Roy Govan Leathercraft, 3908 Grove Street, Oakland 9, California.

KNOCKDOWN Cedar chests. Lumber and veneers. Free price list. Giles & Kendall Company, Huntsville, Ala.

100 FULL Size jig saw patterns up to 20" high, only \$1.00. Pattern Service, Medway 9, Mass.

LEATHERCRAFT Copper tooling, textile painting, beadcraft, shellcraft. Many other crafts. Big free catalog shows everything you need. Kit Kraft, 7373 Melrose, Hollywood 46, California.

FREE Seashell catalog. Shellcraft instruction book 35c. "Secors," Bradenton Beach, Fla.

VIOIN Makers, amateurs, professionals. Fine tone European wood. Supplies. Tools. Patterns. Instructions. Illustrated catalogue 10c. Refunded. Premier Violin Supplies, Dept. VZ, 430 South Broadway, Los Angeles 13, California.

LEATHERCRAFT—New stylecraft folder free. New kits illustrated. Filigree belts, billfolds, purses, etc. Send 25c new catalog. Refunded first order. Apache Leather Co., 2804 East Washington St., Phoenix, Arizona.

STENCILS, 15 Assorted for textiles, furniture, etc., \$1.00. Catalog 300 designs 25c. refundable first order. Marion Specialties, Box 141, Halesite, N. Y.

MINIATURE Furniture kits. Colonial reproductions. Solid cherry. Catalog 20c. Culver Miniatures, 194 61st St., Dept. A, Niagara Falls, N. Y.

30 LAWN Ornament patterns. Ready cut. Full size. Color indicated. \$1.00 postpaid. Lincoln Craft Studio, Columbia, Conn.

FREE Information. How to make money with jig saw. Write Jigsaws, 117-M Worth, New York 13.

\$46 FROM Square foot plywood; jigsaw necessary. Write: Woodarts, PM-252, Bridgewater, Mass.

**HOME Workshops.** Save time and money. Amazing new 344 page book, Machine Shop Tooling, gives you fast answers for machine tool problems. Works like dictionary—tool angles, speeds, feeds, etc. Ten day free trial. Money back if not satisfied. Send \$3 to Wilco Press, Dept. M, 3326 Bailey Street, Philadelphia 29, Penna.

## MAKE IT YOURSELF

**MAKE F.H.A.** approved splash blocks, enormous demand, two buckets concrete returns two dollars. Literature. Forms. Howell, Box 206, Bridgeport, Penna.

**BOOKLET** Describes machinery plans. Gives tips, 25c! Kimo, RCS-P, New York 19.

**FIBERGLAS** Car bodies, etc. Informative booklet of construction hints, "Where to Buy" \$1.00. Goldayne, 3356 Glendale, Los Angeles 39.

**GRANDFATHER Clock** easily built. Big savings. See ad on page 310.

**MAKE Permanent signs** on glass, metal, wood. Beautiful gold and black 2 or 3 inch letters, numbers 5c each. Just wet and attach. Ur-Name Co., Box 508, Geneva, N. Y.

**KIT** To make hand lotion, brushless shaving, cold creams. Send \$1. Confro, Box 950, Washington 4, D. C.

**BUILD Your own home.** Live in it while completing it. I did. Use any plan. Folio my experiences, methods, diagrams. \$1.00. William Kiewel, Crookston, Minn.

**FREE Handbook.** Build sawmills, block machines, freezers, tractors, scooters. Nichols Company, Purvis 2, Miss.

**MAKE Your own "Stone-Veneer."** Economical. Easily made, quickly applied. Looks like genuine stone. Transforms any home into one of excellent beauty. Formulas, illustrations, patterns. Alburg, Box 17, Carrollton, Mich.

**FURNITURE** — Modern prefabricated. Save money. You assemble. Artcraft, East Peoria, Illinois.

**BUILD With concrete, fieldstone, earth.** Movable form system cuts costs. Construction simplified. Free literature. Smith, PM, Box 36, Eagle Creek, Oregon.

**SEND 25c Today** for new large catalogue of supplies for 21 popular crafts. Dept. D-11, Dearborn Leather Company, 8625 Linwood Avenue, Detroit 6, Michigan.

**BUILD Your own "tractor."** Free information. Eltraco, D-I, Campionville, California.

**"CONCRETE Block Homes."** 32-page booklet, on how to build. \$1.00. H. C. Lightfoot, Civil Engineer, Richboro 1, Penna.

## WATCHES, OLD GOLD, JEWELRY

**SET Rhinestone jewelry** for 100% profit. Finest pure rhodium and 24 kt. Hamilton gold finish. First grade Austrian stones. Wholesale illustrated catalogue 20c. Bergen Arts, Dept. M2, 108 Anderson St., Hackensack, N. J.

**REPAIR Watches, clocks, at home.** Permanent, profitable business, easily learned. Electric clock repairing course, 25c. John H. Roach, 407 Chester, Newark, Ohio.

**HIGHEST Prices paid** for old gold, silver, platinum, diamonds, watches, gold teeth, spectacles. Cash immediately. Goods returned if offer unsatisfactory. United Smelting Works, (The Old Reliable), 6-B East Monroe, Chicago 3.

**WATCHMAKERS Journal** contains instructive articles for watchmakers and beginners. \$1.00 year. Sample copy 20c. Dean Co., Box 3218, Daytona Beach, Fla.

**WATCH And clock repairing books** for hobbyists. Free information. North American, Dept. 13-D, 2320 Milwaukee, Chicago 47, Illinois.

**10 HIGH-Grade Swiss ladies' and gents'** wristwatches needing minor repairs. \$18.00. Write for prices. B. Lowe, Holland Bldg., St. Louis 1, Mo.

**RHINESTONES.** Jewelry settings, cameos, sequins, beads. Send 10c for illustrated catalog. J & M Novelties, Dept. CD-3, Griffith, Ind.

**UNREDEEMED Wrist watches.** Late model ladies', men's, Bulova, Benrus, etc. 1 year guarantee, 30 day refund. 15 jewel \$16.50; 17 jewel \$18.70. Mail check or money order. Columbus Loan Co., 375 Columbus Ave., Boston 16, Mass.

**BOXED Assortment women's jewelry** and pearls. Factory priced \$140.00, your cost \$25.00. Specialty Distributing Co., 2311-Y Perkiomen, Reading, Penna.

**5000 JEWELRY Styles,** you can easily make yourself—Pins, earrings, bracelets, rings, matched ensembles. Instructions and catalog 10c. Barrys, 147 Ardsley Court, Newark, N. J.

**WATCHMAKERS'** — Jewelers' complete informative catalogue 20c. Bengale Company, Culver City, California.

**JEWELRY Making** can be a profitable hobby—Send 20c for our latest illustrated catalog. Milady-Fair Co., G.P.O. Box 1328, New York City.

**HIGHEST Cash paid** for old, broken jewelry, gold teeth, watches, silverware, diamonds, spectacles, platinum. Free information. Satisfaction guaranteed. Rose Smelting Company, 29-A East Madison, Chicago.

**UNREDEEMED Diamond**, 1-carat, \$295. 30-day refund. Free catalog. Broff's Diamond Loan Association, 411 Smithfield, Pittsburgh, Penna.

## TOBACCO, SMOKERS' SUPPLIES

**CIGAR-Lovers!** Free trial offer. All Havana filler. Full size blunt. Made in Tampa, Fla. Vacuum packed. 100 cigars for \$5.95. Smoke 5—if not delighted, return remainder for full refund. Send check or m.o. We pay postage. Ace Mail Order Co., 134 Eaton Pl., East Orange 5, N. J.

**CIGARETTES**—Roll 200 guaranteed to please for 75c. Particulars free. Pete Mobley, Box 864, Owensboro, Kentucky.

## RAZORS, BLADES, SHARPENING

**100 DOUBLE Edge razor blades** \$1.00 postpaid U.S.A. Satisfaction guaranteed. Sample on request. United Sales, Box 295, Union, Mo.

## OF INTEREST TO WOMEN

**GOOD Money in weaving.** Weave rugs at home for neighbors on \$59.50 Union loom. Thousands doing it. Booklet free. Union Looms, 153 Post St., Boonville, N. Y.

## FOR SALE—MISCELLANEOUS

**SAVE Money on army, navy and factory surplus.** Write today for new 52-page illustrated catalog. Tennusa Sales Co., Dept. C, 1451 Market, Chattanooga, Tenn.

**REFRIGERATION Condensing units,** new Universal 1/6 horsepower, 110 volts. \$39.50. Donald L. Dickinson, Granville, Mass.

**FREE Catalog** on government surplus bargains from country's largest surplus organization specializing in outdoor, sporting goods, clothing, camping equipment. Tents, rubber boats, tarpaulins, hundreds of other items. Rockaway Sales Co., Route 6, Rockaway 7, New Jersey.

## WANTED—MISCELLANEOUS

**QUICKSILVER** — Highest prices paid. Free containers. Wholesale Terminal, Norwood, Massachusetts.

**SCRAP Mercury (quicksilver) containers supplied**—Tantalum, bismuth, tungsten. Metallurgical Products Company. Established 1909. 35th and Moore Sts., Philadelphia 45, Penna.

## PERSONAL

**LETTERS Retailed** Kansas City postmark 25c. Private receiving address, \$2.00 monthly. Miller, Box 4313, Kansas City Mo.

**BORROW By mail.** Loans \$50 to \$800 to employed men and women. Easy, quick. Completely confidential. No endorsers. Repay in convenient monthly payments. Details free in plain envelope. Give occupation. State Finance Co., 323 Securities Bldg., Dept. A-14, Omaha 2, Nebraska.

**CALIFORNIA**—Letters railed 25c each. Oakland, help wanted, other classified columns \$1.00 each airmailed. Ron 1565 170th Ave., Hayward, California.

**LETTERS Retailed** 25c. Private mailing and receiving address at monthly rates. McLaughlin, 369 Welch, Columbus 7, Ohio.

**LEARN Handwriting character analysis.** Particulars. Lucas, 2419 Sunset Boulevard, Los Angeles, California.

**LETTERS Retailed** 25c. Ads \$1.00. Kittrell, Box 1643, Washington, D. C.

**PERSONALIZED 3 Color name plate** deals. 50 printed with your name only \$1.00. Name, address, city and state, \$1.50. Sample free. Hundreds of uses. Person, 1021 San Anselmo, South Gate, Calif.

**PERMANIZE** Your identification cards in plastic. 3 wallet size pictures or cards expertly sealed in plastic only \$1.00. Plasticrafters, Box 963, Beloit, Wisconsin.

**LETTERS Retailed** 25c. Ten beautiful postcards \$1. Carver, 155 Root Trail, Palm Beach, Florida.

**LETTERS Retailed** from New Orleans 25c. A. Rapp, 1527 Pace Blvd., New Orleans 14, La.

**LETTERS Retailed** from famous Earthquake City 25c. Kinney's, 4411 Frazier Ave., Bakersfield, California.

**LETTERS Retailed** from New England 25c each. Employment columns and business opportunities in greater Hartford and Springfield areas airmailed \$1.00. Pioneer Valley Mailings, Box 1081, Springfield, Mass.

**HOLLYWOOD**, Las Vegas, Miami Beach, New York, Chicago remails 25c; 6, \$1.00. Franklin, Box 2156-PM, Los Angeles 54, California.

**SELL Popular Mechanics** and all other magazine subscriptions. Free catalogue, supplies. Subscription Service Company, Dept. A, P.O. Box 2070, Birmingham, Ala.

**BIBLE Reveals** time of end. Free. Write: Harvest, Jefferson City, Missouri.

**LETTERS Retailed** from North America's northernmost big city. 50c including Canadian postage. N. Human, 12405-87th Street, Edmonton, Alberta, Canada.

## MISCELLANEOUS

**OUTDOOR Toilets, cesspools, septic tanks cleaned, deodorized with amazing new product.** Safe, easy, economical to use. Double waste digesting action. Saves digging, pumping. Satisfaction guaranteed by 150,000 customers. Postcard brings free sample. Burson Laboratories, Dept. O-36, Chicago 22, Illinois.

**LEATHERCRAFT**. Everything needed by beginners, advanced hobbyists and professional leatherworkers. Largest stock of supplies in U. S. Moderate-priced tooling leathers, top quality calfskins, tools, supplies, kits. Send 10c for big catalog. J. C. Larson Co., 820 S. Tripp, Dept. 2951B, Chicago 24.

**CEDARIZE Closets, chests with Cedarwall.** Apply like paint. Genuine cedar. Fragrant. Long lasting. Guaranteed. 5 lb. bag covers 40 sq. ft. Regularly \$4.90. Special \$3.90 postpaid. Maurice Moore, Eastham, Mass.

**MAGNETS**, Permanent Alnico, never loses magnetism. Many uses. 12 for \$1.00. Prift Co., Dept. MM-4, 12 West 27, New York City.

**YOUR Wood**—\$39 cord sold as charcoal. Send for "Making and Selling Charcoal" \$1.00. Gordon House, Box 214, Cambridge 39, Mass.

**PLUMBERS**: Over 1000 plumbing-heating-tool specialties. N. D. Co., P.O. Box 280, Bayonne, New Jersey.

**UNDERWATER Harpoon fishing.** Try this great new sport. \$5.00 brings you detailed plans and instructions by expert on how to make and use your own underwater goggles, breathing tube, harpoon gun and swimfins. Write J.M.S., Malta.

**DON'T Miss the boat!** Thousands have bettered themselves by finding the right opportunity at the right time. Keep posted on latest money making opportunities. Save time and postage. Your name and address printed on labels and sent to over 200 selected firms offering the best. Only \$1.00, for this prompt, sincere effort to find the opportunity that may make your future secure. C. K. Wyatt, 2243 Murat St., Baltimore 13, Md.

**LOCATE**—Water and oil lines, tiles, sewers. Send \$1.00 for plans of amazing device, costs less than \$1.00 to build. Modern Products, 146 S. Prospect, Bowling Green, Ohio.

**GIGANTIC Mails.** Money-back guarantee. 5c month. 50c year. Fal-San, Box 1017, Bridgeport, Conn.

**PLANS** For inexpensive metal detector and list of over 100 lost treasures. \$1.00. Satisfaction guaranteed. Don, 316 North Jefferson, Elk City, Oklahoma.

**STANDARD** All purpose ball point pen. Guaranteed. 50 cents. Anderson, Box 855, Mountain Home, Tennessee.

**LIVING** Is fun in sunny Mexico, where your income stretches at the rate of \$8.65 per dollar. The book "Let's Live in Mexico" (Exposition Press, New York), covers all regulations and procedures for establishing residence; such subjects as citizenship; rights and obligations of aliens; the employment situation; and other related topics, in fifteen interesting chapters. Cloth-bound edition, only \$2.00 postpaid. Send for your copy today. International Publications, Dept. B, Box 789, Harlingen, Texas.

**SELL!** Buy! Trade! Anything. Through Trading Post Magazine. Details, Thorne's, 525 Dewey, Jackson 40, Michigan.

**FREE** Pair climbing irons with reconditioned surplus climbing safety belt \$6.98. Send waist size and height. Towilco, Syracuse 8, N. Y.

**RAW** Peanuts. Gift packed jumbo peanuts, 5 lb. shelled \$3.00; unshelled \$2.00; recipes included. Postpaid, money order, cash, check. Write for health literature; prices on larger amounts. Keel Peanut Company, Greenville, North Carolina.

**WITHOUT** Weapons—100 trick knock-outs for self defense. \$1—1c each. Lincoln Gym, Evanston, Illinois.

**INCREDIBLE!** Become mental superman overnight! Free booklet! Bijou, Box 1727-M4, Hollywood 28, California.

**NEW!** Nicotine stain off! Harmlessly remove the dirty yellow cigarette stain from your fingers \$1.00. Sharon Sales Co., Phoenix, N. Y.

**AUCTION:** Brand names, general merchandise. Auctioneers, 5976 Cote Brilliant, St. Louis, Missouri.

**CONQUER** That old worry habit. Wake up your mind with our amazing home-study plan of "Human Behavior Control." Many helped. Write for unusual free lecture in plain, sealed wrapper, without obligation. Personal Psychology, Inc., Box 1924-M, Louisville 1, Kentucky.

**YOUR** Complete house number. Aluminum alloy casting \$1.75 ppd. Richard Haylett, 640 Burlingame, Detroit 2, Mich.

**RECEIVE** Magazines, samples, catalogues. Mails from everywhere. Offers, hundreds. Get listed 25c. Rorick, Box 86, Cincinnati 26, Ohio.

**POSITIVE** Elevations, slopes, drainage, with Stratex surveying hand level. \$11 postpaid. Instantly survey right angles with engineer's optical square. \$25 postpaid. Fully guaranteed. Free instructions. Stratex, 1861M Hillhurst, Los Angeles 27.

**SELECTIVE** Metal and mineral detector. Revolutionary design. Distinguishes metals from black magnetic sands. Readily detects metals under salt water. Also Geiger counters. Free literature. Gardiner Electronics Company, 2018 N. Dayton, Phoenix, Arizona.

**LUMINOUS** Reflective paints glow day and night in technicolor! New angle money maker. Assorted color samples 25c. Research, 1842-PM Byron, Chicago 13.

**HEARING** Aid batteries, wholesale. Free list. Habs, Box 51, York, Penna.

**300 BIG** Mails guaranteed. Samples, plans, offers, propositions, 12 months listing, \$1.00 (refundable). Wright Publications, 2270 Hubbard, Memphis 8, Tenn.

**NEW** Calendar bank. \$2.00 postpaid. Majatrix, 67 Lincoln, Seekonk, Mass.

**STUDY** Wildlife, game warden, fish, park, forestry and patrol service. Details free. Write Delmar Institute, Dil, Whitier, Calif.

**YOUR** Leather jacket renovated expertly. Free circular. Berlew Mfg. Co., Dept. 8, Freeport, N. Y.

**GOLD**, Silver, metal detectors. Geiger counters for uranium. Mineralights. Sensational new fully guaranteed models. None finer. Information free. Detectron Co., 5631 Cahenga Blvd., North Hollywood, California.

**TREASURE**—M-Scope Geiger counters, mineral locators. Why buy something inferior when you can buy the best at a lower price? Backed by years of experience. Fully guaranteed by factory. Detects minerals, metals, gold, silver, coins. Payment plan available. Proven superior performance. Free 16 page illustrated booklet. Fisher Research Lab., Inc., Palo Alto, California.

**GENUINE** Buckskin jackets, gloves, moccasins. Send 50c for buckskin pouch and illustrated catalogue. Berman Buckskin Co., Dept. 55, Minneapolis, Minn.

**PANNING** Gold lesson and catalogue. Beginners supplies, books, "maps where to go" free. Old Prospector, Box 729D1, Lodi, Calif.

**HOMES** You can build for \$4500 to \$7046. Books that take you through every step. Popular Mechanics Famous Concrete Block House, \$2.00. Your Home and How to Build It Yourself, \$3.00. Ranch Type House You Can Build, \$3.50. Also full-sized builder's plans for each home at nominal price. Popular Mechanics Press, Dept. 102, 200 E. Ontario, Chicago 11, Ill.

# ENGINEERING

**INDIANA  
TECHNICAL  
COLLEGE**

DEGREE IN  
27 MONTHS

B. S. DEGREE, Aeronautical, Chemical, Civil, Electrical, Mechanical and Radio Engineering (inc. TV and Electronics). Drafting, 1-yr. G.I. Gov't approved. Low rate. Earn board. Large industrial center. Students from 48 states, 21 countries. Demand for graduates. Enter June, September, December, March. Write for catalog. 1643 E. Washington Boulevard, Fort Wayne 2, Indiana.

## MONEY IN HAMSTERS

 Easy—Profitable raise in any climate. Thousands used for laboratory and pet trade. Beautiful pets. Write for free booklet. SOUTHERN HAMSTERY, Box 685M, GAFFNEY, S. C.

## PORTABLE GARAGE

\$6.95 Plastic Vinyl  
USE IT ANYWHERE

- Folds compactly • Keeps rain, snow, dust, salt air, sun or sleet away
- Protects your car's finish • Durably constructed of vinyl plastic • Springite elasticized bottom, holds securely in all kinds of weather • Fits all makes • Direct from manufacturer • Enclose check or money order for \$6.95, or send C.O.D. 10-DAY Money Back Guarantee.

MARDO SALES CORP.  
480 Lexington Ave., Dept. G-359, NEW YORK 17, N. Y.

**Stop TERMITES yourself**  
at a big saving — with amazing  
new product, ARAB U-DO-IT

A packaged product is now available for you to knock out subterranean termites yourself by the modern, soil-treatment method. This product is ARAB U-DO-IT Termite Control, a liquid concentrate with a Chlordane base. One gallon mixed with water makes 100 gallons ready-to-use termite killer and will treat average 5-room house. Easy to apply. Non-inflammable, no objectionable odor. Will not harm grass, flowers, shrubs or trees. Long-lasting effectiveness proved since 1946 by leading exterminators. If your dealer cannot supply, send postcard for prices and FREE folder showing how termites get into your house, where to look for them, how to kill them. No obligation.

FEDERAL CHEMICAL CO., Dept. PM-43  
Indianapolis, Indiana



## LEARN FASCINATING Leathercraft

Make your own bags, belts, wallets, etc. Learn fascinating, profitable leathercraft in spare time. Send 25c for valuable Catalog, has over 200 photographs. (refunded first purchase).

BURTONS LEATHERCRAFT  
Dept. PM-4, 1727 Glendale Boulevard, Los Angeles 26, Calif.

## Be a FROGMAN



JOIN! JOIN!

Join the new NATIONAL FROGMAN CLUB today! Send \$1.00 with your name and address to the club headquarters. Here is what you will get:

1. FREE COUPONS totalling \$1.00 in value which can be used toward the purchase of official Frogman equipment, redeemable in your local sporting goods store or department.
2. A miniature rubber replica of a pair of FROG FEET water flippers for your key chain, lapel or windshield.
3. Attractive membership card certifying you are a FROGMAN.
4. A FROGMAN decal.
5. A booklet on "How to Swim Underwater" and "The Supreme Sport of Spearfishing."
6. Complete catalog of FROGMAN equipment.
7. Periodic newspapers for a year of club news, pictures and articles about FROGMAN activities, equipment and instruction.

Send your \$1.00 TODAY!

## NATIONAL FROGMAN CLUB

Dept. PM  
1428 S. Maple Avenue  
Los Angeles 15, California  
Gentlemen: Attached is \$1.00 in cash, check or money order. Enroll me in the NATIONAL FROGMAN CLUB and send me the items above.

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_



## The COASTER BRAKE with SELF-ALIGNING BRAKE SHOES

**Ride  
a Bike  
it's  
Fun!**

Self-aligning brake shoes give quicker stops, longer life, easier pedaling. It's another Bendix feature that makes the Bendix\* Coaster Brake the outstanding performer in its field. Your dealer will put on the brake you want—so just say "Bendix Coaster Brake." \*REG. U.S. PAT. OFF.

**DOUBLE THE FUN  
WITH A *Bendix*  
COASTER BRAKE**

ECLIPSE MACHINE DIVISION of  
Elmira, New York



## HOW TO EARN SPARE MONEY

**...and learn a  
useful trade**

Think of it! Now you can do your own welding at home or on the farm. Yes ... repair farm and garden tools, build metal furniture, handy tool stands, and all kinds of farm machinery. And as you teach yourself to weld, you become the expert repairman in the neighborhood. The extra cash you make buys equipment for your shop or farm. What's more, you can recharge car batteries for neighbors and pick up more spare change.



**Makes Welding Easy  
LINCWELDER 180**

**WELDS • CUTS • SOLDER • BRAZES  
CHARGES BATTERIES**

- Broad current range 20 to 180 amps handles 1/16" to 5/32" electrodes.
- Operates from 230 volt single phase current.
- Approved by Underwriters' Laboratories.

Also "Linewelder 60" . . . handles 1/16" and 5/64" electrodes. Operates on 115 volt grounded circuit. (No. 12 wire fused for 20 amps)

**ORDER  
YOUR  
WELDER  
NOW!  
Fill out  
and mail  
TODAY!**

The Lincoln Electric Company, Dept. 2902, Cleveland 17, Ohio

- Ship me the "Linewelder" AC 180 K \$201.
- Ship me the "Linewelder 60" \$48.

Add State and Local sales tax. (Prices include accessories). Arc Torch and Battery Charging Attachment extra.

Enclosed is:  check  money order  
Send me free bulletins on the "Linewelders".

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

Guests Will  
Rave Over  
Your Cooking!



### ...WHEN YOU HAVE A HANCOCK

Outdoor Fireplace. Nothing's so delicious as juicy steaks or 'burgers broiled outdoors over a glowing hickory wood or charcoal fire! Send 10c for Plans—"HOW TO BUILD YOUR OUTDOOR FIREPLACE"—with working drawings for a variety of designs.

**HANCOCK IRON WORKS**  
Box 13 — 813 Pontiac, Mich.

**UNITS  
from  
\$1995**

F.O.B.  
PONTIAC

### A "GOOD HAND" HELPS YOU SUCCEED!

*Your Name*

beautifully written, plus special pen-point for shaded writing.

OUR 53rd YEAR Only 10¢

**LEARN TO WRITE WELL**

Handwriting quickly improves with our easy-to-understand picture lessons! Put your spare time to good use; send today for  FREE BOOKLET, "How to Become a Good Penman," or check volumes wanted below at \$1 each:  Business Writing  Artistic Writing  Card Writing  Bird & Design Flourishing  Engraving Alphabets. COMPLETE SET \$4.50. Ask for price list of penman's supplies.

**TAMBLYN SCHOOL of PENMANSHIP**  
S.A. Ziller, Pres., 442 Ridge Bldg., Kansas City, Mo., USA



### MAKE WOOD VENEER PICTURES FOR PROFIT

EASY TO GET BEAUTIFUL RESULTS  
**4 for \$1.00** We will send you complete material for 4 hunting scene silhouettes in ebony black & natural veneer. Frames are included. Only scissors and glue needed—no difficult inlay work. Latest home decorating rage. Order now. SIZE 6 1/2" x 7 1/2" Send only \$1. No C.O.D.'s please.

THE PICTOETTE CO. • BOX 202 • ORRVILLE, OHIO



### LEARN HOW TO BUILD A SHIP IN A BOTTLE

Start this new hobby today. For amazing hobby kit and simple instructions send only \$3.00 to  
**DUBOUCH CO.**, Box 1553, Chicago 90, Ill.

### HE-MAN VOICE!



STRENGTHEN your voice this tested scientific way. Yes—you may now be able to improve the POWER of your speaking and singing voice . . . in the privacy of your own room! Self-training lessons, mostly silent. No music required.

**FREE BOOK** Write TODAY for Eugene Feuchtinger's great booklet "How to Develop a Successful Voice." It's absolutely FREE! You must state your age. Booklet mailed postpaid in plain wrapper. No salesman will call. Send your name and age RIGHT NOW! Perfect Voice Institute, 210 S. Clinton St., Studio DX-2, Chicago 6, Ill.

**Monogram** **SPEEDEE-BILT**  
New Models

**PANTHER JET** **THUNDERBOLT**

**FUN TO ASSEMBLE  
ALL PARTS FINISHED**

### Navy and Air Force Planes With Full Armament

Here are the two newest models in the famous Speedee-Bilt flying model series. Only \$1 each for Panther Jet F9F and Thunderbolt P-47. Easiest models to build. Build one complete and fly it in an evening. Use Jetex engine for the jet job. Power rubber supplied for the Thunderbolt. Kits contain built-up Monofoil wing, pre-fab fuselage, finished wood parts and 14 molded plastic parts including prop, pilot, canopy, machine guns, rockets, and other parts. Catalog of other models in each kit. Write today.

**MONOGRAM MODELS**, Dept. 14, 3421 W. 48th Place, Chicago 32

**BE A HIGH-PAID MAN IN YOUR COMMUNITY WITH THIS LONG NEEDED INVENTION**

Earn up to \$10,000 or more per year! U.S. Pat. D. 153853-  
Nothing to invest! Be your own boss! D. 153854

A worldwide product needed by every home, business and farm... priced to sell quickly at long profit! Automatic Red Comet goes into action as soon as fire starts... smothers fire without human aid. It's a sales 'natural'!



**FREE SALES KIT**

Demonstrator units, sales literature, etc., furnished you FREE. Handsome leather-type kit. Tried and proved, it will make you an independent businessman. ACT NOW! Someone in your community will be appointed soon. Write for details, today!

**RED COMET, INC.**

Dept. 44-F, R.C. Bldg., Littleton, Colo.

**TELEVISION ELECTRONICS  
SHOP TRAINING**

In only 5½ months we can prepare you to enter this rapidly growing BIG PAY field. No previous experience or special training necessary. We help you find full or part-time jobs while training. Est. 1936. Veteran Approved.

Write now for

**FREE CATALOG**

**BAILEY TECHNICAL SCHOOLS**

1626 S. Grand • St. Louis 4, Mo.

**STOP FORGETTING**



Amazing memory can be yours! Remember names, faces, dates! Astound your friends, amaze your boss, stand out from the crowd, be admired by all! Win friends and success. Write for FREE brochure. Or mail \$3 for complete new, easy scientific course. MEMORY INSTITUTE — Box 261-AC — Staten Island 1, N.Y.

**FISHERMEN: Use Trip Sinkers!**

Release your snagged fishing sinker by pulling it out backwards. Save your gear and control your temper. Convert your own fishing sinkers to TRIP SINKERS with these easily attached inserts. A real 'must' for all bottom fishing. Inserts for 10 sinkers—plus—full instructions only \$1 postpaid. Money back guarantee.

**F. NELSON CO.** 120 Westchester Sq.  
New York 61, N.Y.

**SAVE VALUABLE GEAR**

**SPARE TIME PROFITS  
EARN MONEY AT HOME**

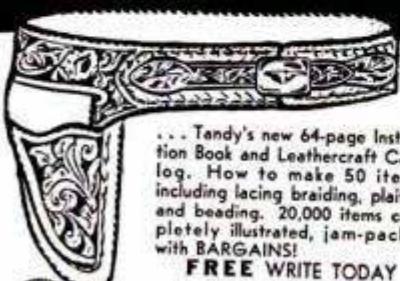
Cash in on this pleasant and profitable business. Re-string Rackets full or spare time. No experience or skill required. Easy to learn. Full line of finest quality, guaranteed Stringing Tools, Frames, Gut and Nylon Strings.

**W. A. BICKEL & CO.**, 803 South Blvd., Dept. PM-4, Oak Park, Ill.



FREE CATALOG  
INSTRUCTIONS  
WRITE TODAY

**FREE LEATHERCRAFT CATALOG**



**"Leaders in  
Leathercraft"**

... Tandy's new 64-page Instruction Book and Leathercraft Catalog. How to make 50 items, including lacing, braiding, plaiting and beading. 20,000 items completely illustrated, jam-packed with BARGAINS!

FREE WRITE TODAY

**tandy**

WE SELL FOR LESS — SINCE 1919  
**LEATHER COMPANY**  
P.O. BOX 791-ET, Ft. Worth, Tex.

**Insist on  
KNICKERBOCKER  
REPEATING  
WATER PISTOLS!**

Ask for them at  
your favorite  
toy counter.

**"Western  
Style"**



Authentic Western six-shooter style. Fires 300 shots without reloading. 7½ inches long. Assorted colors. **\$4.99**

**"Super  
Jet"**



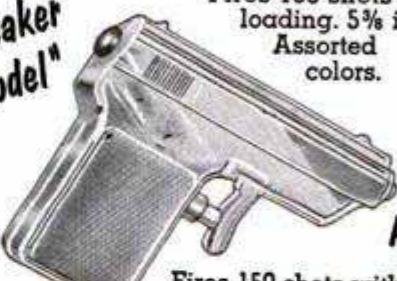
Fires 250 shots without reloading. Transparent plastic allows view of water. 7 inches long. Colors: red, yellow or green. **\$4.99**

**"Space  
Jet"**



Styled for the space ship era. Fires 150 shots without reloading. 5½ inches long. Assorted colors. **\$3.99**

**"Sneaker  
Model"**



Palm Size  
Fires 150 shots without reloading. Transparent plastic allows view of water. 4½ inches long. Colors: red, yellow or green. **\$3.99**

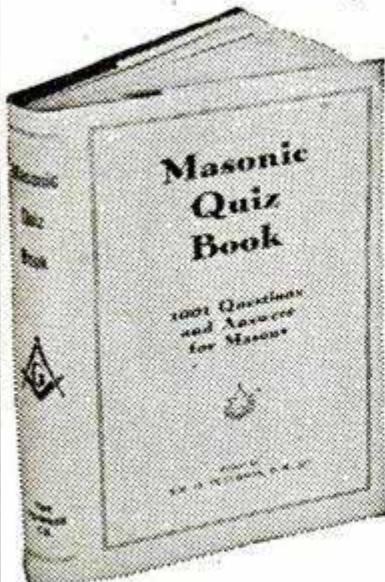
Available at toy, novelty and variety stores or write for the name of your nearest dealer. No mail orders, please.

**KNICKERBOCKER**

**PLASTIC COMPANY**

4101 San Fernando Road, Glendale 4, California

**EVERY MASON WILL WANT THIS  
MASONIC QUIZ BOOK**



**"Ask Me  
Another,  
Brother"**

A real help to every Lodge Officer, Master Mason or Masonic Student.

Does not disclose any Secret Work, but gives authoritative information on Masonic history, ritual.

Includes such questions as:

- What did Masons have to do with the Boston Tea Party?
- What reference is made to the Catholic Church in Masonic teachings?
- Has every President of the United States been a Mason?

**\$3**

284 pages, 5½x8", bound in cloth, and a distinct addition to the library of any man, even though he is not a Mason.

Postpaid or C.O.D. plus postal charges

*A Gift that every Mason will appreciate*

**ORDER YOUR COPY TODAY**

**THE CHARLES T. POWNER CO.**  
Dept. PM-453, 407 S. Dearborn, Chicago 5, Illinois



**100% Guaranteed Against Breakage!**

Exciting new fun for young and old! Gay, multi-colored giant rubber ball features one piece seamless construction . . . is strong enough to stand on! Patented blow-up feature can't leak! Inflates easily by mouth or pump. Replaced without charge if you ever break it under ANY condition!

We pay postage — Send check, cash or Money Order. Your order rushed.

YOUNG PRODUCTS, 1283 2605 Elmhurst, Detroit 6, Mich.



**MECHANICS BROWLITE**

Browlite lights up the darkest corners and leaves both hands free to work, no interference from swinging lights or other attachments. Browlite directs the light wherever you look. Get at least two—one for the car, one for the house. You'll wonder how you ever got along without it. Comes complete with batteries and bulb. Send no money (C.O.D.). You Pay Postage and Handling or send \$2.98 with order and we pay all charges. Send 10¢ for novelty catalog.

ONLY  
**\$2.98**

NOVELTY MART, 59 East 8th St., New York 3, N.Y., Dept. 111

**WARN HUB CAPS MAKE  
2 JEEPS OUT OF 1**



Willys \$20.00  
Dodge \$23.00  
Ppd. U.S.  
Canada

End front wheel drag on all 4-wheel drive Willys and Dodge vehicles

Save gas to 5 miles per gallon, reduce wear on front tires, axles; increase speed and power, stop front wheel shimmy—front wheels coast out of gear! 4-wheel drive handles, performs, climbs like 2-wheel. Install or remove in 10 minutes. Polished aluminum, guaranteed. Thousands in use. Prices quoted. Rush check, M.O., or C.O.D. NEW AUTOMATIC CAP available. Permits use as 2 or 4-wheel drive automatically, all speeds. LOCKING CAP also available which converts from 2 to 4-wheel drive or back with simple turn of lock. Fully guaranteed. Write for literature, prices.

WARN MFG. CO., Riverton Box 6064-A2, Seattle 88, Wash.

**HELPFUL BOOKS**

*Send post card asking for FREE catalog*

Popular Mechanics Press, 200 E. Ontario, Dept. 601, Chicago 11

**"BARGAINS"**

LISTS EVERY MONTH  
HUNDREDS OF TERRIFIC BUYS IN—



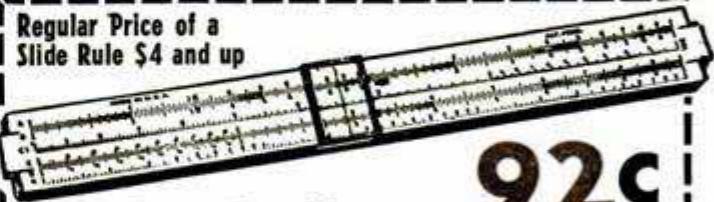
• NEW & UNUSUAL Items • Items at WHOLESALE • Items at BELOW WHOLESALE • BUYS in BANKRUPT, CLOSEOUT, SURPLUS goods • Rare opportunities to make extra money. Hundreds of TERRIFIC Offers in Toys, Books, Household goods, Jewelry, Greeting Cards, Etc. Here's a few SAMPLE Bargains— • Famous \$25 Perfume at 60¢ • 50¢ and \$1 Xmas cards 12¢ to 35¢ BOX • Pencils, 60¢ gross • \$1 Toys, 20¢ each • 30¢ Deodorant, 2¢ a jar • \$1.95 Silk Ties, 12½¢ EACH, PLUS MANY, MANY MORE!

BIG SPECIAL ISSUE NOW OUT! Subscribe NOW! M.O.B. lets you BUY BETTER, CHEAPER, NEWER things for yourself or for resale at TREMENDOUS PROFITS.

**\$1.00** Buys 6 Big Issues—1 Yr. \$2.00. Reg. price \$3.00 year. Spec. Limited time offer to get 10,000 new subscribers! The only magazine of its kind published!

TOWER PRESS INC., P. O. Box 591-SBC, Lynn, Mass.

Regular Price of a  
Slide Rule \$4 and up



**92¢**

and this coupon  
Add 8¢ Postage

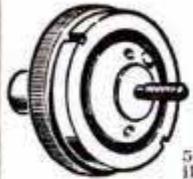
**Slide Rule**

If you know how to use a pencil you can use a slide rule. For bookkeepers, accountants, salesmen (figuring commissions, cost, etc.), farmers, housewives, etc. For Armed Forces highly important. Men's most useful tool. Easy to calculate instantly. Multiplying, proportions, division, roots, etc. "High Vision" Clear View Slide. Full 10" Rule. A, B, C, D, C1 and K scales. FREE 28-page instruction book on how to get correct answers instantly without pencil or paper.

Gene Loewy, 545 5th Ave., Dept. 43-B, N.Y. 17

Limit three rules to each coupon

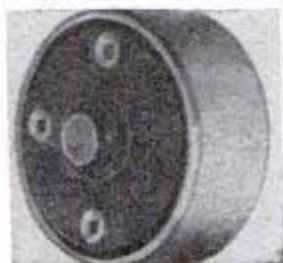
# AMAZING MYSTERY BUTTON



Startles everybody. with this Electronic Button you can make your own Telephone-Amplifier-Detectiphone. Attach this button to piece of cardboard—transmit conversation to another room. Music also transmitted to distant places. Most interesting electrical apparatus ever discovered. Enables you to perform hundreds of experiments. So tiny it can be concealed in dozens of places. Electronic Button including 5000 word instruction booklet with 50 illustrated experiments, postpaid, only \$1.00 Small gold plated button (5/8 in.) for.....\$1.25

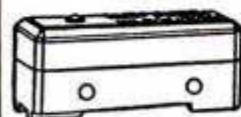
## SUPER MYSTERY BUTTON

Many times as sensitive as our regular mystery button. Can be used for the same experiments and uses as the mystery button but with far better results. Need no diaphragm of any kind. Ideal for musical instruments, intercommunication, recording, talking thru radio, and many other uses. When used with small head phone it makes an ideal inexpensive hearing aid. Shipped with 5000 word, 12 page booklet showing diagrams for doz. uses, postpaid. ....\$2.00



## AMAZING ELECTRIC SWITCH

ELECTRIC SWITCH OF A THOUSAND USES—MILLIONS NOW IN USE.



Turn on your porch light when you open the door—sound an alarm when the mail is put in the box—shut off the water when the tank gets full, these and many other services are performed with this amazing switch. Shipped with an instruction sheet showing more than 40 illustrated uses for this device at the \$1.00 postpaid, bargain price of....\$1.00 postpaid.

ELECTRONIC PRODUCTS CO., St. Charles 10, Illinois

## French Style DUELING SWORDS

Once used in deadly combat—now an exciting sport! Learn right at home. Fun—SAFE—educational. These swords are made of fine blue spring steel, polished metal

**heavy duty**  
guards, turned handles, rubber safety tips. Fencing teaches quick thinking, develops coordination, posture. Since the Middle Ages, Europeans have enjoyed the sport of dueling. Now advocated by U.S. colleges. Set includes 2 swords booklet "Fencing Art". Special price, **MONEY BACK IF NOT COMPLETELY SATISFIED** If your sporting goods dealer can't supply you, send \$3.98 to TECHRITE CORP., Box 27F, South Pasadena, Calif

SET \$3.98  
OF TWO post paid  
41" long

## WHAM-O SPORTSMAN \*



\$1.50  
35-LB.  
PULL!

HITS LIKE A RIFLE—  
KILLS RABBITS, SQUIRRELS.  
Powerful, silent, accurate.  
For hunting, target,  
routing pests.  
Sportsman's choice  
sold world  
over!

### HUNTING SLINGSHOT

Heavy duty 7" ash stock.  
40 steel balls, extra rubber, target.  
GUARANTEED. At dealers, or send \$1.50 to  
Wham-O Mfg. Co., Box 8T, South Pasadena, Calif.  
\* Professional model of Nat'l Slingshot Assn.

## SENSATIONAL OPTICAL BARGAINS

### IMPORTED 20X TELESCOPE AND TRIPOD

Machined threaded fittings throughout. Weighs 7 ounces. 6 3/4" closed length. 13 1/2" open length. Achromatic objective lens low reflection coated on inside. Makes excellent spotting scope. Swivel-head tripod is collapsible. 9" high.  
Stock #50,007-H  
(with tripod).....\$12.95 Pstpd.  
Stock #50,006-H  
(without tripod).....\$8.95 Pstpd.

### SLIDE PROJECTOR SETS

Stock #4029-H-35 mm.....\$2.85 Postpaid  
Stock #4038-H-21 1/4" x 2 1/4".....\$3.35 Postpaid

**SIMPLE LENS KITS** —Include plainly written, illustrated booklet showing how you can build lots of optical items. Use these lenses in photography and for dozens of other uses in experimental optics, building TELESCOPES, low power Microscopes, etc. Stock #2-H-10 lenses.....\$1.00 postpaid  
Stock #5-H-45 lenses.....\$5.00 postpaid  
Stock #10-H-80 lenses.....\$10.00 postpaid

We Have Literally Millions of War Surplus Lenses and Prisms for Sale at Bargain Prices. Also numerous Types of Instruments, including low price, imported microscopes. Write for FREE CATALOG-H.

Order by Stock No.  
Send Check or  
M. O.

EDMUND SCIENTIFIC CORP., Barrington, N. J.

# GLORIFY YOUR CAR WITH THESE LEOPARD or COBRA REVERSIBLE

## Design



SEAT COVERS  
For all cars, all makes,  
all models

SAVE  
\$4.00  
NOW

NEW!

2 WAY

REVERSIBLE!

- Water & Grease Proof
- Fully Fire Retardant
- Glamorous Silky Finish

TRY IN YOUR  
CAR 5 DAYS  
AT MY RISK!

BUY DIRECT

2 95  
EACH

NOW! Enjoy these beautiful seat covers for 5 days at MY risk! You'll be thrilled with the fine design made famous by Cadillac. **SAVE** up to \$4.00 on each seat cover you buy! See how they beautify your car and protect the upholstery. Yes! Try them right in your own car **WITHOUT OBLIGATION**—entirely at **MY** risk! If not delighted your money comes right back—no questions asked. You have everything to gain — **NOTHING** to lose!

**NEW ADJUSTOMATIC FEATURE!** Slide on . . . slide off . . . in 1 minute. So easy and fast to install! **NEW ADJUSTOMATIC** feature—simply slide on or off in 1 MINUTE FLAT! You'll love the feel of this genuine VINYL material! It's so silky-looking . . . yet **TOUGH**! Resists flame, water, grease, grime and soiling by babies and pets.

**LEOPARD-COBRA PATTERN GIVES NEW BEAUTY TO YOUR CAR**  
No matter how soiled or worn out your upholstery is . . . no matter if you have a '39 Chevy or a '53 Cadillac, these magnificent **ADJUSTOMATIC** seat covers will add new glamour to your car! Your friends will never imagine you paid so little for these quality covers!

**REVERSIBLE 2 WAY PATTERN GIVES YOU DOUBLE USE!**  
This handsome Seat Cover can be used TWO ways—**INSIDE** or **OUT**. It leads 2 lives . . . change over to suit your every whim and desire. You will be delighted with the smart **LEOPARD** or **COBRA SNAKE** pattern. Well made for long satisfying service.

### SPECIAL SAVINGS OFFER!

Buy your **ADJUSTOMATIC** Seat Covers by mail—**DIRECT** from the "Seat Cover King." No need to pay up to \$4.00 each. Our special volume price only **2.95** each or set of **TWO** for front and rear for only **5.00**. You need send no money. Pay the low, low price plus postage on delivery. **SAVE MORE** by sending check, money order, and they will be shipped **POST-PAID**.

### Your Money Back If Not Satisfied!

When you receive your **ADJUSTOMATIC** Seat Covers, look them over carefully. Note the special construction details. Then put them in your own car. Note how the rich, glamorous pattern highlights the interior of your car. Feel the Vinyl material. Use them for **5 FULL DAYS**. You must be delighted in every way. If for any reason in the world you are not thrilled, return them for a **FULL REFUND** of the purchase price! Don't lose this golden opportunity! Take advantage of these low **SALE** prices! Rush the coupon **NOW**!

MOTO-MATIC COMPANY, 127 W. 33rd Street, Dept. 6-D-150, New York 1, N.Y.

MOTO-MATIC COMPANY, Dept. 6-D-150,  
127 West 33rd Street, New York 1, N.Y.

"MR. SEAT COVER KING": Rush sets of **REVERSIBLE SEAT COVERS**, as described below, on **5 DAY TRIAL**. I will pay low price plus postage on arrival. You are to return full price if I am not satisfied in **EVERY** way! The **INITIAL** is mine to **KEEP** in any case!

Send **FRONT** seats—**2.95**       Send **BACK** seat—**2.95**

Send set **FRONT & REAR** at cut price of **4.95**

Write initial desired here.

Car MODEL.....YEAR.....Full or Split front.....

NAME.....

ADDRESS.....

TOWN.....STATE.....

**FREE!**  
OF EXTRA COST  
Your Own Car  
Monogram



Handsome, **GOLDEN HUED**, embossed metal initial adds note of distinction to your car. No screws, no drilling. Simply press on—adheres to all metals, plastic, glass, leather, wood. Never mars car finish. **GIVEN FREE** of extra cost with every order for **TWO** seat covers. Yours to **KEEP** even if you return covers for refund! Mention letter desired. Price without covers—only **\$1.00**.

# GREER SHOP TRAINING

2230 So. Michigan Blvd.  
Chicago 16, Illinois



## Leader in Practical Training for 50 Years

Gain success by learning a trade offering security and high pay—go into business for yourself.

### Get the "Know-how" at Greer

You learn in our new, large, modern shops by working with latest tools and equipment of the trade—tear down, inspect, repair and rebuild... under supervision of experts. Greer founded 1902. Over 51,000 successful grads. Part time, full time, day and evening. E-Z terms. Mail coupon today.

**CLIP COUPON . . . MAIL TODAY**

Greer Shop Training—2230 South Michigan  
Chicago 16, Illinois Desk 213

Please send information about trade checked:

- Body, fender Repair  Diesel Mechanics
- Welding—Arc, gas  Tool & Die
- Refrigeration & Air-conditioning  Refrigeration
- Machine Shop  Piano tuning
- G.I. appr. for Vets dischd. after 7-25-47

Or learn at home—extension courses:

- Diesel  Refrigeration  Plastics
- Check if Veteran

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

Age \_\_\_\_\_



## NEW! SENSATIONAL HOME BUSINESS



BIG MONEY  
for you in

CASECRAFT

No Experience

No Special Tools Needed

WHAT IS CASECRAFT? For years, the art of making and repairing custom luggage and cases has been known to only a few! That's why skilled craftsmen have always earned sky-high wages. The supply has never equalled demand! Now, you can learn all the secrets of CaseCraft—make big money at home, almost immediately!

EASY TO LEARN. Learn Lining, Design... covering with Leather, Leatherette, etc. It's amazingly easy! We supply everything you need to earn as you learn—step-by-step instructions—complete Business Getting Plan... PLUS materials to make items worth \$60! "CHANCE OF A LIFETIME" OPPORTUNITY. Sell custom cases to salesmen, doctors, musicians, etc. etc. Everyone's a prospect for luggage, repair work. Help us fill the huge demand! Less than 10% of U.S. towns and cities now contain people skilled in this trade. Discover how you can enter this fascinating, high-income business at your risk!

Earn \$10-\$15 Per Hour!  
At Home—Sparetime

Rawhide Suitcase  
Materials, \$25.00  
Sell For \$250.00

Jewel Box  
Materials, \$8.50  
Sell For \$85.00

Salesman's Case  
Materials, \$2.50  
Sell For \$25.00

Instrument Case  
Materials, \$7.50  
Sell For \$75.00

Equally Huge Profits  
On Hundreds of Items!

MAIL COUPON TODAY!

Abarsi CaseCraft, Dept. PM-4  
805 W. Sunset Blvd., Los Angeles 12, Calif.

Dear Mr. Abarsi: Please rush complete facts  
and FREE booklet on CaseCraft, with no  
obligation. No salesman will call.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

**FREE!**

My Booklet  
Gives  
Complete  
Facts About  
CaseCraft!



A. J. Abarsi,  
President  
Abarsi CaseCraft,  
805 W. Sunset Blvd. Los Angeles

# SEND FOR Free Record

START SPEAKING

## FRENCH OR SPANISH

ALMOST OVERNIGHT!



HERE'S the easiest way to learn FRENCH, SPANISH, Russian, German, Italian, Japanese or Brazilian. Listen to FREE 2-sided non-breakable record. Let your eyes follow words in FREE sample lesson. Almost at once you'll be chatting in a new language with a perfect accent! Offer may end soon. Rush 25¢ to help cover cost of special packaging, shipping of free record, lesson. State language you want. We'll also send free information on full Cortina course. CORTINA ACADEMY, Dept. 644, 105 W. 40th St., New York 18.

## GIANT BALLOONS



Genuine Govt. surplus weather, target balloons. For FUN or PROFIT. Great sport in the backyard; or for parties, picnics, dances, fairs. MONEY-MAKERS. Use these balloons to attract crowds to civic events, conventions, exhibitions, trade shows. TERRIFIC for high school and college proms. Special purchase makes these low prices possible.

3 ft. dia. 49c—6 ft. dia. 79c—13 ft. dia. \$1.59

20 ft. dia. \$1.95

\* Calif. residents please add sales tax.

WAR ASSETS DIV. VOLUME SALES CO.  
Dept. M-4-53 3930 Sunset Blvd. Los Angeles 29, Calif.

## \$750 BUILDS 4 ROOMS & BATH!

### WHY PAY RENT?

For Seven Hundred Fifty Dollars and 30 days of your spare time, you can build yourself this Beautiful Home. Living Room 11x15, Front bedroom 9x11, Back bedroom 10x12, Kitchen 9x11, Bath 5x8, Hall 3x4. Wind out steel casement windows, Concrete block, stuccoed. Illustrated pictures, step by step instructions, blueprint and material list. \$1.00. Money back guaranteed.

L. H. FARROW, Dept. C  
Box 645 Columbus 16, Ohio

## MAKE Raising CHINCHILLAS! MONEY

YOU RAISE THEM — WE BUY THEM  
Send for free booklet of success stories

NATIONAL CHINCHILLAS, Fullerton 13, California

## HIGH POWER TELESCOPE

60 POWER—ALUMINUM TUBES—OPENS TO 33"

Variable Power Adjustable to  
15X, 30X, and 60X.

\$5.95

Leather  
Case Included  
5 Sections, 4 Ground & Polished Lenses. Also used as  
50X Microscope. Ready to use, only \$5.95, POSTPAID.

CRITERION CO.  
DEPT. AP7  
331 CHURCH ST.  
HARTFORD 3, CONN.

## OPPORTUNITY

in Aviation

## DRAFTING & DESIGN SPECIALISTS needed now

Maximum training in minimum time! Thorough, practical instruction backed by more than 25 years of aviation technical experience. Training authorized under G.I. Bill.

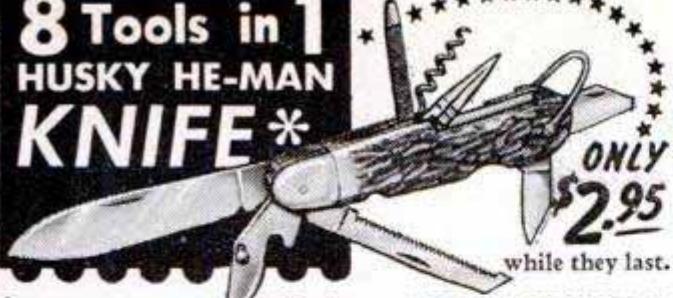
Write today!

Illustrated Catalog  
Registrar, Dept. 99,  
Miami 30, Florida



TRAIN IN MIAMI -- AIR CAPITAL OF THE WORLD

# 8 Tools in 1 HUSKY HE-MAN KNIFE\*



while they last.

ONLY  
\$2.95

\* A Tool Chest  
in your pocket!

1. 3 1/4" Knife Blade
2. 3 1/4" Saw
3. Screw Driver
4. 1 1/4" Curved Blade
5. Awl Piercer
6. 1 1/2" File
7. Corkscrew
8. Bottle & Can Opener

Ruggedly constructed of finest quality, TEMPERED STEEL. Handle of GENUINE STAG HORN. This is the knife of a hundred uses for Outdoorsmen, Gardeners, and Hobbyists. This imported multi-purpose knife weighs 9 oz., and measures 6 inches when closed. Order NOW...

**HOLLYWOOD SALES CO.**

3414 W. MAGNOLIA BLVD., BURBANK 2, CALIF.

## Quick, EASY Way to REPRODUCE any Object

Make exact duplicates of trays, lamp bases, medallions, figurines, vases, etc., right at home over night! New RUBBER MOLD method needs no heat curing. No special skill or tools required. Make perfect reproductions of objects of clay, plasterine, wood, metal, glass, in any quantity! Cost will be only few cents. Send for Brochure 42 which gives exact step-by-step instructions anyone can understand and follow. Send 10¢ for it today to SCULPTURE HOUSE, 302 West 42nd Street, New York 36, N. Y.



### How to Make Money in PHOTOGRAPHY

EARN WHILE YOU LEARN AT HOME! If you are OVER 17—good pay work await you in photography! fascinating money quickly in sparetime — step into your own studio or exciting job. LEARN-BY-DOING method trains you at home! Write TODAY for FREE catalog. Also Resident Training, 43rd Year! GI Approved. NEW YORK INSTITUTE OF PHOTOGRAPHY Dept. 49, 10 W. 33 St., New York 1 N.Y.

Send for  
FREE  
BOOK

## YOUR FUTURE IS ON PAGE 23

### HULA POPPER • GETS BIG BASS

Surface popping lure. Ideal combination of noise, action, casting and hooking qualities. Pops, plunks, jerks, twitches — obeys your slightest wrist command. Rubber Hula Skirt imitates live bug. At your dealer 5/8 oz. or 1/4 oz., \$1.25. Fly rod size, 75c.



FRED ARBOGAST & Co., Inc., 2254 W. North St., Akron 3, Ohio

**FREE** WRITE TODAY FOR YOUR BIG FREE ARBOGAST COLOR CATALOG—FULL OF PICTURES OF CATCHES

YOU ACTUALLY SAVE \$20.00

**DROP-TESTED** non-magnetic

**17 JEWEL**

REG. \$35  
WRIST  
WATCH  
OUR  
PRICE ONLY

\$14.95

radium dial & hands

shock resistant

radium dial & hands

JOIN THE FUN—SAVE 50%

# PACKAGED BOAT KITS



EASY TO ASSEMBLE

OUTBOARD CRUISERS from \$349.50

SEND 25¢ FOR BIG 1953 CATALOG

See our complete line before you buy! World's most complete line of real Performance Boats: Dinghies, Skiffs, Pontoon Racers, Runabouts, Outboards, Cruisers. Exclusive features, mahogany parts plus brass screws. Also marine hardware, fittings, accessories and quality paints.

Catalog plus booklet "Boat Selection, Operation & Maintenance" \$1.00

SEND 35¢ for World's most complete Catalog of Full Racing and Speedboat Accessories, general boat hardware, fittings, paints, conversions and conv. kits. Also new "ARMOR-GLASS" covering material for boats. Catalog plus booklet "How to Paint, Outfit and Care for your Boat" send \$1.00

BOAT PLANS AND FULL-SIZE PATTERNS

CUSTOM-CRAFT (DEPT. A) BUFFALO 7, N.Y.

BOAT PAINT, ACCESSORIES and FITTINGS

Over 100 Modern plans and full size patterns. Racing classes, cruisers, inboards, outboards, sail boats. By famous designers. 6' to 30'. DESIGN CATALOG only 35¢. For Design Catalog plus boat building handbook send \$1.00.

10,000 HELPS TO BE YOUR OWN BOSS IN THIS BIG BOOK!

## DON'T PASS UP THIS OPPORTUNITY!

Never before has a more helpful book been printed for those who plan to go into business for themselves. Gathered in this large illustrated volume are facts, recipes, secrets and formulas such as those employed in amassing some of America's large fortunes. You too can employ this information to build up your own success and independence.

### Just what you've been looking for

The facts and helps are presented in simple easily understood words by experienced folks trained by long service as instructors. Not only do they show how to get best results, but advise short cuts and profitable methods for producing in volume.

### Think what some have done with a single idea, recipe or formula

Lots of profitable concerns have been started with just an idea or a single recipe. Think what you can do with more than 120,000 facts and 10,000 formulas contained in this book. Among a few are such as:—Adhesives, Alloys, Anti-freeze Solutions, Cosmetics, Beverages, Candy, Gum, Casein, Celluloid, Ceramics, Chinese Cleaning Preparations, Casting Materials, Copper, Cotton Uses, Dentifrices, Depilatories, Dyes, Enamels, Glass Articles, Glazes, Gold, Household Insecticides, Ink, Insecticides, Jewelers' Preparations, Lacquers, formulas, Polishes, Powders, Remedies for Man, Paper, Perfumes, Photography, Polishes, Powders, Remedies for Beast and Fowl, Rubber Products, Refrigerants, Soaps, Soft Drinks, Soldering, Tooth Preparations, Transfers, Varnishes and 1000's of others.

Included "Knowledge is Power". Don't let success pass you by! Have more money, a better home, more time to travel & spend with friends. Act now for the better things in life.

It's easy to start at home in spare time. Many men have started and built up a highly profitable enterprise right in their own home. Not only do they save thereby, but they conserve their funds and have money available as soon as expansion is warranted.

**VETERANS, SERVICEMEN AND DEFENSE WORKERS** who are anxious to settle down in a favorite spot and set up a profitable business will find the contents of this book especially helpful.

### Order your copy of this book now

Have it on hand to consult at your leisure. See how you can adapt it to plans for your locality and be ready when you make that important break to start a business of your own.

\$3.98 postpaid anywhere. (Or send \$1., pay balance C.O.D., U.S.A. only). Same-day shipment. Safe delivery guaranteed.

World-Wide Service — Books on Any Subject

ADAMS BROWN COMPANY, Dept. 105, BOSTON 67, MASS., U.S.A.

# MEN WANTED!



Make \$15-\$20 in Few Hours  
Spare Time—up to \$2100 a Week FULL TIME—with Amazing D-FROST-O-MATIC!

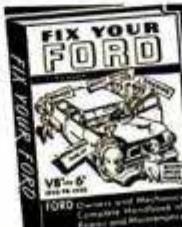
Millions of housewives want this sensational new Automatic Refrigerator Defroster! No more messy hand defrosting! Just plug in D-FROST-O-MATIC and refrigerator is defrosted automatically every night! Sales easy, sure when you leave D-FROST-O-MATIC on FREE TRIAL—housewives won't let you take it out! Saves money, food, time, work! Big profits for you—up to \$210.00 a week full time—\$15 to \$20 in just a few spare hours! Start spare time and build big, prosperous business . . . quickly, easily!

Rush Name Today for Profit Details and FREE TRIAL PLAN!

More than 29,000,000 prospects waiting! Rush your name and address today. We'll airmail exciting facts, proof and sure-profit Free Trial plan. No obligation. Write today.

**D-FROST-O-MATIC, Dept. A-6**  
173 W. Madison Street, Chicago 2, Ill.

**SELLY of California**  
started in his  
spare time  
and now sells  
1500 D-Frost-  
O-Matics a  
month!



Brand new handbook for owners and mechanics by Bill Toboldt, Editor, Motor Service Magazine. Covers all Ford V-8's and 6's, 1932 to 1952. Brings you the know-how of hundreds of Nation's top Ford service men. Includes step-by-step service procedure, shortcuts and kinks to speed repair, tune-up specifications, how to increase gas and tire mileage, make car run better, last longer, worth more. Hot rods and speed-ups too. Simplified. Packed with pictures. If you drive a Ford or are interested in Fords you need this book. Clip this ad and mail with \$2. Money back guarantee. Goodheart-Willcox Co., Dept. 201, 1321 S. Michigan, Chicago 5

FIX YOUR FORD and SAVE

**RADIO** Engineering. All phases radio & electronics theory & practice; television; FM; broadcasting; servicing; aviation, marine & police radio. Prepare for high pay; 18-month course. Graduates in demand by major companies. Enter Jan., March, June, Sept. Regular campus life. Write for catalog. VALPARAISO TECHNICAL INSTITUTE, Dept. D, Valparaiso, Ind.

**UP TO 6 MILES MORE PER GALLON**  
Reported by Hundreds Using  
**MIRACLE ACTION TUR-B-LIZER**  
Carburetor specialists say Tur-B-Lizer is best patented improvement they have seen. Tested in over million miles of driving. Write for full facts or send \$3 for 8 cyl. type, \$4.50 for 8 cyl. Easily installed. Try Tur-B-Lizer in your car. If you do not notice immediate improved performance and gas savings claimed by users, your money will be refunded.

Mechanics—Salesmen: Make good money full or part time. Write for best territories now.

**UNIVERSAL TUR-B-LIZER CO.**  
Milwaukee, Wisc.  
623 E. State St.

**HIT THE JACKPOT!** WITH SECRET FORMULAS THAT HAVE MADE MILLIONS

BUILD SPARE TIME INCOME OF OVER \$200 PER WEEK, AS MUCH AS \$500 PER WEEK FULL TIME!

Make your own products...carefully selected chemical formulas for the home, farm and workshop. Now available for the first time! Laboratory Institute reveals the world's best, most closely guarded chemical formulas, complete with detailed, easy-to-follow instructions...no previous training necessary for success.

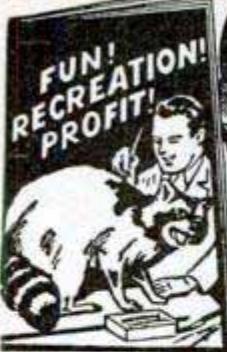
Hundreds of much sought after products including: Cosmetics, Drugs, Paint, Putty, Auto Polish and Chemicals, Fly and Insect Killers, Ink, Glue, Cement, Lubricants, etc.

**EARN THE MONEY YOU'VE ALWAYS WANTED**  
...own your own business. Read of the fabulous success achieved by others, with no experience, no complicated equipment. Learn the truth behind making money with chemistry.

Don't sit back while others make big money. Act Now! Get in the swim...rush today for free, complete information. A post card will do!

**LABORATORY INSTITUTE**  
8762 Holloway Drive • Los Angeles 46, California

# Tells How You Can Learn to MOUNT BIRDS!



**FREE BOOK**

## Learn At Home

Men, Boys, Hunters, Fishermen, mount and save your lovely wild-game trophies. Be a Taxidermist. Mount Birds, Animals, Heads, Fish, Tan skins. YOU learn easily, quickly in spare time. Have a grand home-museum. The finest and the greatest hobby known, for sportsmen. Fun, real profits.

## FREE BOOK

all kinds of wild-game, and common specimens too. We can positively TEACH YOU. So GRASP this opportunity. RUSH letter or postal for this amazing FREE BOOK. Don't delay. State your AGE. N.W. SCHOOL OF TAXIDERMY, 2504 Elwood Bldg., Omaha 2, Neb.

## SAVE \$200 — BUILD YOUR OWN GARAGE

Plans for 1½ or 2 Car Garage or 20'x20' Cottage — Only \$1.98

Material list and estimated cost included FREE. Sizes 14'x20' or 20'x20'. Hood or Gable Roof. Specify type and size when ordering. Postage prepaid with check or money order, otherwise C.O.D. B.C. Co., 17122 Scottsdale, Cleveland 20, Ohio.



## TIRED OF THE SAME OLD LOW-PAY JOB ?

SEE PAGE 23

## FREE TO P.M. READERS . . .

1953 Guide to Fun-in-Photography FREE, No Charge! 52 pictures, diagrams, data, charts, cameras, accessories. Send name, address & brand-of-camera (if any) in family to Room 1604, 251 Fourth Ave., New York 10, N.Y.



## FULLY GUARANTEED TIRES COST LESS!

Nationally famous FIRESTONE, GOODRICH, U.S. ROYAL, GOODYEAR, and other makes. Every tire selected and inspected for your safety.

**A** FREE TUBE WTH PASSENGER TIRE NEW TREAD TIRES GUAR. 24 MO.  
**L** (MUD & SNOW or WHITE WALL TIRES \$1 EXTRA)  
**E** 550x16 7.98 600x16(6) 9.98 | 650x20(8) 19.95 | 700x16(6) 14.48  
 550x17 7.98 650x15 9.98 | 640x15 8.98 | 710x15 10.48  
 600x15 7.98 650x16 10.48 | 670x15 9.98 | 760x15 11.48  
 600x16 7.98 650x16(6) 12.48 | 700x15 11.48 | 820x15 12.98

**A** AAA PREMIUM GRADE GUARANTEED 18 MONTHS  
**L** 550x15 5.48 700x15 5.98 | 760x15 5.58 | 750x20(10) 14.98  
 600x16 5.28 700x16 6.78 | 550x17 5.48 | 825x20 18.68  
 600x16(6) 6.58 700x16(6) 7.98 | 600x20 9.78 | 900x20 18.98  
 640x15 5.68 750x16(6) 8.98 | 650x20 10.88 | 1000x20 19.98  
 650x16 5.78 800x15 6.88 | 700x20 12.88 | 1000x22 21.98  
 650x16(6) 6.98 820x15 7.48 | 832x6(8) 10.48 | 1100x20 20.98  
 650x15 5.98 710x15 6.09 | 32x6(10) 12.48 | 1100x22 21.98  
 670x16 6.18 550x18 5.98 | 750x20(8) 12.98 | 1100x24 23.98

**G** GOOD TIRES GUARANTEED 12 MONTHS  
**S** 600x16 4.14 | 700x16 5.14 | 32x6(8) 8.84 | 825x20 14.24  
 650x16 4.54 | 670x15 4.74 | 32x6(10) 10.84 | 900x20 13.34  
 650x15 4.34 | 650x20 7.84 | 750x20(8) 8.54 | 1000x20 14.14  
 700x15 4.64 | 700x20(8) 8.94 | 750x20(10) 9.94 | 1100x20 16.14

**MILITARY SPECIAL** AA Guaranteed 12 Months—  
**PENNA'S LARGEST STOCK**

900x16 10.69 | 1000x20 19.98  
 750x20 10.98 | 1100x20 21.98  
**AAA GUARANTEED 18 MONTHS**  
 900x16 14.98 | 750x20 16.48

Largest stock of used tires in the East. Thousands of satisfied customers. Write for Free Catalogue.  
**MONEY ORDER OR CHECK**  
**WITH ORDER**. NO C.O.D.'s

**PYRAMID TIRE CO.**  
 1333-35 North 5th St.  
 Dept. M., Phila. 22, Pa.

Mutual Investment Funds

*Investors*  
**MUTUAL  
STOCK FUND  
SELECTIVE FUND**

Face-Amount  
Certificate Company

*Investors*  
**SYNDICATE  
OF AMERICA**

Prospectuses of these companies available at offices in 148 principal cities of the United States or from the national distributor and investment manager

*Investors*  
**DIVERSIFIED  
SERVICES, INC.**

Established 1894

200 Roanoke Bldg., Minneapolis 2, Minn.

## UNLIMITED OPPORTUNITIES IN ENGINEERING

DEGREE  
IN 27 MONTHS

Study Engineering in this world-famed school. Established 1884. Demand for our graduates exceeds supply. Approved for Korean Vets.

Bachelor of Science Degree in Mechanical, Civil, Electrical, Chemical, Aeronautical, Radio (Television) Engineering; Business Administration and Accounting. Also 36-weeks certificate courses in Surveying and Drafting. Personalized Instruction. Accelerated courses. Non-essentials eliminated. For ambitious, earnest students. Earn your degree in the shortest possible time. Preparatory courses. Placement service.

Extensive Campus. Well equipped, new and modernized buildings; up-to-date labs. Low cost. New terms start quarterly. Enter June, September, January, March.

→ Mail Coupon Today ←

### TRI-STATE COLLEGE

443 College Avenue, Angola, Indiana

Please send me free catalog and special information. I am particularly interested in courses as checked:  
 Mechanical  Civil  Electrical  Chemical  Aeronautical  
 Radio (Television)  Business Administration  Accounting  
 Short Diploma Courses

Name \_\_\_\_\_

Address \_\_\_\_\_

# ABOUT YOUR HEART



Bernarr Macfadden at 84 again astonished the world and proved that he has a heart of a man in his twenties by making his 3rd parachute jump from 1,000 feet . . . this time in Paris, near the Seine River.

Now this sturdy pioneer in health-building had a history of severe heart trouble. He rebuilt his own heart and claims that his heart today is stronger than it was 25 years ago!

Through the science of Kinesitherapy, Bernarr Macfadden is today the symbol of rugged, healthy maturity. If you've been bothered with unpleasant symptoms in the heart region, Write to Bernarr Macfadden, Daily News Bldg., New York City. You will receive information which may add years to your life.

Bernarr Macfadden (84) says: "Growing old is a bad habit." He proved it, in his case, by parachuting into the Hudson River on August 26, 1951, and on Aug. 29 in Paris, 1952, without injury.

## "NOW I'M MY OWN BOSS at Double My Former Salary"

Paul M. De Vita, Former Low Paid Auto Mechanic Steps-Up Earnings to Over \$100 a Week As A CUSTOM UPHOLSTERER

"I can hardly believe how quickly I've gotten ahead in this interesting and profitable trade. I was an auto mechanic making about \$55 a week. Now I operate my own shop and make more than \$100 a week doing mostly contract work. My window display brings in a lot of extra business besides. UTS training sure has been valuable."

**WHAT DO YOU WANT? A Better Job—Your Own Business—Substantial Sparetime Earnings—A Better Future? They're all waiting for You in the Big-Opportunity Field of Custom Furniture Upholstery.**

AT HOME in spare time, you can do what Paul M. De Vita and hundreds of UTS graduates have done—easily, quickly! Trained upholsterers are scarce. You can earn as you learn to make good money all year 'round at home, in your own shop, or in a well-paid job. The famed N. Y. State-licensed UTS course teaches you custom furniture upholstery, car upholstery, furniture finishing, repairs, PLUS 4 BIG EXTRAS—slipcover, window cornice, cushion and drapery making. You get—FREE of extra charge 4 BIG OUTFITS of tools, complete frames and all materials to build beautiful upholstered furniture that's yours to keep or sell!

Our FREE book, "A New Way to A Successful Career" tells you all about this fascinating, big pay, big opportunity trade. WRITE TODAY! UPHOLSTERY TRADES SCHOOL, Dept. BD-305, 721 Broadway, N. Y. 3.

**SEND FOR BIG FREE BOOK**

UPHOLSTERY TRADES SCHOOL, Dept. BD-305  
721 Broadway, New York 3, N. Y.

Send me FREE book on Home Study Course

Name \_\_\_\_\_

Address \_\_\_\_\_

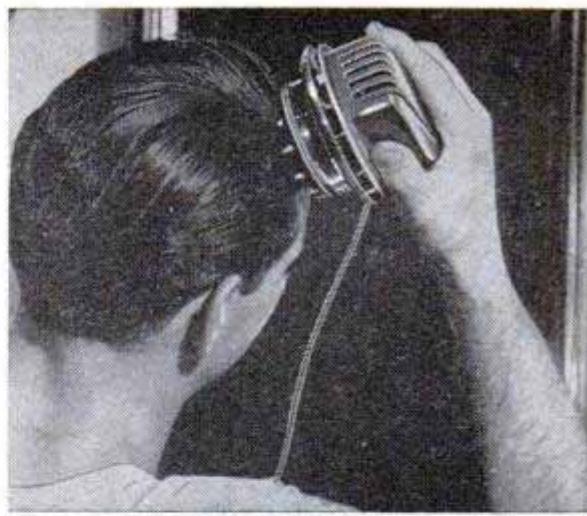
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Check here if Veteran

YOU MAKE  
SLIPPER CHAIR

CLUB CHAIR  
OTTOMAN

YOURS TO  
KEEP OR  
SELL



## HAIRVAC

### New Massage Instrument Keeps Hair, Scalp, Clean and Healthy

Removes embarrassing dirt and dandruff . . . promotes hair health with electrical massage. Vibrating rubber fingers loosen, vacuum suction removes, harmful scalp wastes. Soothing, enjoyable rotary massage—3000 pulsations per minute—tones up scalp, stimulates circulation, distributes vital natural oils, makes scalp tingle for hours. VISKON patented disposable filter—easily inserted and removed—traps dirt and dandruff . . . immediate visible proof of Hair-Vac's effectiveness. USE HAIRVAC DAILY to keep hair handsome, glossy, better looking . . . scalp clean, healthy, invigorated.

Hand-size, easy to use, convenient at home or away. Wonderful with a wave; no resetting ever necessary. No water, soap, oil—nothing to dull the natural beauty of your hair. Already in use in thousands of homes. UL-approved. AC only. Complete with 100 filters, only \$14.95, postpaid. Order by mail today—check, money order or C.O.D. Immediate delivery. Guaranteed, of course.

**H. C. PAULK**

304 Kansas Ave., Dept. 234, Topeka, Kansas

### AMAZING NEW POCKET SIZE RADIO!

NO TUBES, BATTERIES OR ELECTRIC "PLUG-INS" NEEDED. "TUNES IN" MOST LOCAL RADIO STATIONS with STATIC-FREE CLEAR TONE. Has new perm-crystal diode and TINY SELF-CONTAINED SPEAKER PHONE—A marvelous real tiny pocket size radio to take with you anywhere you go—for REAL FUN AND ENJOYMENT. GUARANTEED TO WORK and should last for years! SEND \$1.00 postman \$3.99 C. O. D. postage or send \$4.99 for p.p. delivery. COMPLETE ready to play. By mail only from: Midway Company, Dept. PPM-4, Kearney, Nebr.

Our 593rd Advertisement

### REAL DIESEL ENGINE

**\$3.95**

- for planes, boats, midget cars
- 7500 RPM; 1/7 HP; ht. 3 1/2"; wt. 5 oz.
- precision machined for smooth operation

You just can't beat this price for a precision diesel engine! Streamlined, compact, easy to install. Thousands of satisfied users all over the world. Fast delivery if you ORDER TODAY! Send \$3.95 plus 25c postage.

GOTHAM HOBBY CORP. Dept. P, 107 E. 126th St.  
New York 35, N. Y.

### METAL ANIMALS of Yesterday! ROYAL BRONZE FINISH

A	B	C	D	E	F	G	H

Averaging 3" . . . . . 1.00 ea.  
Averaging 6" . . . . . 2.00 ea. (mail order only)

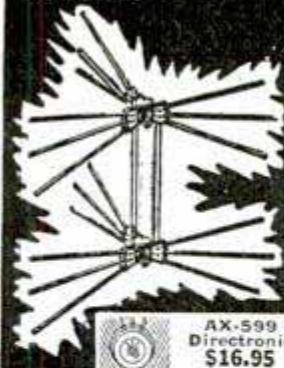
A—PLESIOSAUR B—PTEROACTYL C—TRACHODON  
D—STEGOSAURUS E—TRICERATOPS F—TYRANNASAURUS  
G—DIMETRODON H—BRONTOSAURUS  
J—MOSASOUR (not shown)

**ROYAL BRONZE**

225 Fifth Avenue  
Room 502-M, New York 10, N.Y.

## Amazing NEW MOTORLESS TV Antenna

Super Powerful All Channel TV RECEPTION IN ALL DIRECTIONS



AX-599  
Directronic  
\$16.95  
You pay postage

Do not remit more than complete purchase price, 25% deposit on C.O.D. orders, please. Money-back guarantee.

NATIONAL ELECTRONICS OF CLEVELAND  
304 DELCO BLDG. CLEVELAND 3, OHIO

### Rocket DIRECTRONIC MOTORLESS TV ANTENNA

360° Electronically Switched Beam

- No Motors
- No Roof Orientation
- No Electric Power
- No Ghosts
- Flick of Switch Clears Picture Instantly

In the city or in an ultra-fringe area, the Directronic will out-perform ordinary antennas. Only the Motorless 360° Directronic TV Antenna offers "around the compass" reception WITHOUT Rotors. Clarity of picture will amaze. It's so bright, so sharply defined. AX-599 "Serviceman's Array" contains Hi-Pac molded insulator of extremely high tensile strength, 18 hi-tensile aluminum alloy elements, 1 set of connecting stubs (3), Universal U-Clamps for masts to 1 1/2", Directional Beam Selector, 75 feet of Tri-X Cable.

NATIONAL ELECTRONICS OF CLEVELAND  
304 DELCO BLDG. CLEVELAND 3, OHIO

## Unusual & Unique items!

- ★ The mail-order house for MEN
- ★ Send only \$1.00 for Surprise Sample, Lists, and Catalogue.

HOLLYWOOD SALES CO. Dept. A  
3414 W. Magnolia Blvd., Burbank, Calif.

## STOPS BOAT LEAKS FOREVER!

### BARNACLE RESISTANT FIBERGLAS STRONGER THAN STEEL

Saves Money. Saves Work. Pays For Itself. This new permanent armor protection for boat hulls, decks, cabin tops, is quick and easy to apply. Light, yet has 5 times tensile strength of steel! Used for making NAVY boats, also bulletproof vests, etc. EV-R-Shield Fiberglas Coating stops leaks and boat worms. Non-rotting. Can't stretch or shrink. Ends yearly boat hauling and bottom painting. Adds years or life to old or weak hulls! Makes boats drier than new. FREE! Complete instruction kit and sample of material. Write to EV-R-SHIELD PRODUCTS, Box 43-A, Joppa, Maryland.



**You will BE PROUD TO OWN**

THIS BEAUTIFUL LUCERNE DELUXE TIMEPIECE



### ACCURATE

- SWISS MAKE
- ANTIMAGNETIC
- CHOICE OF DARK OR LIGHT FACED DIAL
- RED SWEEP SECOND HAND
- CALIBRATED DIAL FOR HOURS AND SECONDS
- LUMINOUS HANDS & DIAL
- BRILLIANT GOLD-LIKE CASE
- GOLD PLATED EXPANSION BAND

MONEY BACK IF NOT DELIGHTED

G-R WATCH PRODUCTS CO. P.O. BOX 2217  
SOUTH ANNEX - VAN NUYS, CALIFORNIA

Only **8.95**  
.90 FED. TAX

Full Year Guarantee  
Send check or money  
and save postage or  
send no money and  
pay postman \$9.85  
& few cents postage

# \$100.00 A WEEK IN YOUR SPARE TIME!

### Assemble and Install Buckeye Screen and Glass Combination STORM WINDOWS

(Glass and screen panels are interchangeable in summer and winter)

Install 10 Storm Windows —  
Make \$100.00 Profit!

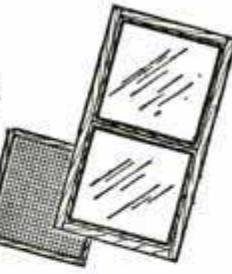
- Shipped in Knocked-Down Form.
- Tens of Thousands Already Sold.
- Either Redwood or Aluminum Types.
- No Finer Quality Available.

Here's your golden opportunity to turn spare hours into big money! In just a few hours a day you too can make more money than you ever dreamed possible—in both summer and winter—assembling Buckeye Combination Storm Windows.

Imagine making \$10.00 or more on every Buckeye Combination Storm Window you can assemble and install! Yes, that's the kind of clear profit you can make. Assemble 10 windows, make \$100.00 (about 7 hours time after a little experience).

This is no get-rich-quick-scheme but a legitimate, sound way for you to make additional money in your spare time. You risk nothing—no tools to buy, no big inventory needed. Just order storm windows as orders pour in.

We have been in business twenty years, sold tens of thousands of these top quality redwood or aluminum storm windows. Our reputation is your guarantee of quality.



You Pay Only  
**\$6.65**

for a redwood combination storm window to fit a house window 28 1/2" x 56 1/2" (Screening and glass not included)

### FHA FINANCING THROUGH YOUR BANK

Yes, Buckeye Storm Windows are approved by FHA (Federal Housing Authority). You or your customers can pay as little as \$5.00 a month for these storm windows, take up to 36 months to pay! No down payment. Your local bank will be pleased to give you full information.

WRITE FOR DETAILED INFORMATION TODAY!

SOME ATTRACTIVE DEALER TERRITORIES STILL AVAILABLE!

THE BUCKEYE SCREEN & WEATHERSTRIP CO.

1380 S. 22nd Street, Columbus, Ohio

### PREPARE FOR BETTER JOB, BIGGER PAY IN SPARE TIME AT HOME

Today, choose the job you want—and prepare for it in time you might otherwise waste. Or if you are already in the work you like best, start training now for quicker promotion and increased pay. During more than 50 years AMERICAN SCHOOL has helped ambitious people to reach higher goals. Check subject that interests you and mail coupon for full information.

Without obligation, please send FREE and postpaid, full particulars about the subject checked below.

<input type="checkbox"/> Accounting	<input type="checkbox"/> Plastics Engineering
<input type="checkbox"/> Air Conditioning	<input type="checkbox"/> Plumbing—Practical
<input type="checkbox"/> Architecture & Building	<input type="checkbox"/> Private Secretary
<input type="checkbox"/> Automotive Technician	<input type="checkbox"/> Refrigeration
<input type="checkbox"/> Better Foremanship	<input type="checkbox"/> Retail Merchandising
<input type="checkbox"/> Bookkeeping	<input type="checkbox"/> Salesmanship—Outside
<input type="checkbox"/> Business Management	<input type="checkbox"/> Sheet Metal Work
<input type="checkbox"/> Contracting	<input type="checkbox"/> Tool Making
<input type="checkbox"/> Diesel Technician	

<input type="checkbox"/> Drafting—Building Trades	<input type="checkbox"/> Drafting—Machine Trades
<input type="checkbox"/> Electrical Engineering	<input type="checkbox"/> Electricity—Practical
<input type="checkbox"/> Electronics—Industrial	<input type="checkbox"/> Electronics—Industrial
<input type="checkbox"/> High School Courses	<input type="checkbox"/> Machine Shop Operations
<input type="checkbox"/> Mathematics & Slide Rule	<input type="checkbox"/> Mathematics & Slide Rule
<input type="checkbox"/> Mechanical Engineering	<input type="checkbox"/> Mechanical Engineering

OCCUPATION.....  
AGE.....  
STATE.....

NAME.....  
HOME ADDRESS.....  
CITY.....

MAIL COUPON NOW 

# sea-net

the official

## FROGMAN EQUIPMENT

For pool, lake or ocean, the finest in underwater swimming equipment. High speed flippers, masks and goggles in attractive marine blue pure gum rubber. Send for complete free catalog of underwater equipment today!



Official Equipment

NATIONAL FROGMAN CLUB

At your dealer or  
order direct.

sea net Mfg. Co., 1428 Maple Ave., Los Angeles 15, Calif.

Face Mask  
\$3.95\*

Froggles  
\$1.25\*

Super  
Frog Feet  
\$7.95\*

\*Plus tax

## FREE! IMPORTS

To New Members

### FROM FOREIGN LANDS



Free to new members of the International Traders Guild—many unusual, useful products from France, Japan, Germany and other foreign lands, and trade bulletins listing hundreds of import bargains to sell at high U. S. prices. Also requests from overseas buyers for U. S. exports. Opportunity, men—women, profitable, world-wide, mail order business at home; or travel abroad; no capital needed. 2,000 members in 42 countries. 7th successful year. FREE details. Mellinger Co., Suite 254, 1717 Westwood, Los Angeles 24, Calif.



### Fabulous Profits At Home...Raising

## ORCHIDS

World's most thrilling hobby—most profitable home business. A single Orchid plant may multiply into HUNDREDS—each as valuable as the first. Famous grower shows you how! Raise gorgeous Cattleyas, Cymbidiums, Epidendrums on living-room table. Big-profit orders come from Homes, Florists, Gift Shops, etc.—also Mail Orders. Illustrated secrets of the experts in simple "show-how" language—INCLUDING actual Orchid plants—all you need to start at home, sent on risk. FREE—full details—SEND NO MONEY. Write today. TROPICAL FLOWERLAND, Dept. 13-G, 601 South Vermont Avenue, Los Angeles 5, California.

## VAC-U-PAC

### SAFETY GRIP

Easier to carry & pour bottle

Stops bottle from rolling

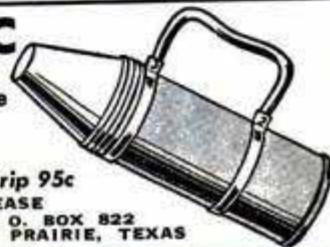
Helps prevent breakage

Pr. Size Grip 75c Qt. Size Grip 95c

NO STAMPS PLEASE

VAC-U-PAC

P. O. BOX 822  
GRAND PRAIRIE, TEXAS



Weighs less than 1 lb.!

## HIP POCKET GYM

Now Only  
**\$3.95**

Postpaid  
Sold at \$5.95  
Nationally

Skinny? Build yourself up! Fat? Reduce—turn fat to muscle! Helps body build itself. Simple—Easy! Women—even children can use it. No nailing on walls—no crawling on floors! A few minutes a day rids you of "tired, run-down feeling". Builds health in Veterans Hospitals. Made of pure natural rubber. Light, compact—take it wherever you go! 5 Day Money Back Guarantee PLUS FREE Health & Strength Instructions. MAJOR LEAGUE SUPPLIERS, DEPT. PM4, 58 EAST 11th ST., N.Y. 3, N.Y.

## KIT BOAT OWNERS

### SAVE with "Kits for Kits"



FREE

LITERATURE:

Specify boat kit,  
size and make.

Buy all your marine paint, fittings and marine hardware in kit form and save dollars. Everything for your boat. Buy with confidence from the nation's most complete marine supply store.

**SOUTH COAST COMPANY** Since 1908  
2212 Newport Blvd., Newport Beach, California

## FREE SAMPLE LESSON

## WATCHMAKING

CHICAGO SCHOOL OF WATCHMAKING  
2330 Milwaukee, Dept. 143, Chicago 47, Illinois

Show me without obligation how I can learn watch repairing at home. Rush free sample.

Name.....

Address.....

City..... Zone....State.....

As reported in

## POPULAR MECHANICS

Choose from 13 True-to-life Photographic Reproductions in Full Color of WOODS—MARBLES—LEATHER

So revolutionary that scores of National Magazines have run stories and full color pictures. A sensation with Home Craftsmen. Used for years to finish finest radio and television cabinets, furniture, and interiors of expensive cars. New, simplified method for applying makes home use easy. Covers any smooth surface whether flat or rounded. Turns corners, presses into shallow recesses and has relief. Can be varnished, waxed or polished like wood. Transforms old tables, chests, cabinets into new modern pieces. No glue, no clamps, no weights. Goes on like decal.

**ACTUAL SAMPLE FREE.** Send name, no money. We postpay actual sample, plus information, prices, and full color chart of wood, marble, and leather grains. Apply sample. See for yourself how easy, how beautiful, how true to life. Send name at once. A postcard will do.

Transveneer Sales Co., 125 W. Hubbard St., Dept. TV-24, Chicago 10, Ill.



"Junk" into Beauty  
Old dining table—cut down—covered with Verdi Antique Marble Transveneer—becomes modern coffee table. Big circular of projects sent with Free Sample. Send name, no money. We prepay postage.

MONTH AFTER MONTH, YEAR AFTER YEAR, YOU SEE OUR AD.  
CHECK AND DOUBLECHECK BEFORE YOU BUY ANYWHERE!  
1 Are These Tires "Family-Safe?" Our Families Use Them.  
2 Are They Recaps? Ours Are Not (Except Passenger Snow-Tires)  
3 Will I Get Good Year, U. S. & Famous Brands? From Us, You Must!  
4 Is The Guarantee Unconditional? See Our Fine Offers Below.  
5 Can Good Tires Be Bought Cheaper? It's Dangerous To Pay Less.  
6 Is A Tube Included Free? Yes, We Do. See OUR Free Tube Offer.

**GOOD/YEAR** **Firestone**  
GOODRICH, U. S. & OTHERS, USED TIRES (NO, NOT RECAPS)  
DOUBLE WARRANTY & UNCONDITIONAL GUAR. ON PASS. TIRES  
Our Policy is to select your tires so carefully, as if our very future depended on the service given by that particular tire.

**FREE TUBE WITH EVERY GOOD GRADE & FINEST GRADE PASSENGER AND TRUCK TIRE**

GOOD	GRADE	20	MONTHS	GUARANTEE	BOND
600-16	\$4.02	820-15	\$5.30	600-20	\$6.92
650-16	4.40	700-15	4.22	650-20	7.52
700-16	5.00	670-15	4.40	700-20	8.40
650-15	4.00	710-15	4.60	750-20	8.40
760-15	4.90	550-19	6.54	825-20	13.92
				1100-20	13.94
FINEST GRADE, 30 MONTHS GOLDEN RULE GUARANTEE BOND					
THIS GRADE MADE THE "BLATT" NAME WORLD FAMOUS.					
600-16	\$5.12	700-15	\$5.32	30 MONTH GUAR. TRUCK TIRES	
600-16(6)	6.92	475-19	5.08	700-15(6)	59.92
650-16	5.92	640-15	5.02	700-17	10.62
650-16(6)	7.92	670-15	6.22	750-20(10)	17.52
700-16	6.52	710-15	5.72	750-15	13.22
700-16(6)	8.72	760-15	5.92	750-17	13.92
750-16	7.02	800-15	6.62	700-18	10.00
550-17	4.52	820-15	6.72	600-20	15.82
650-15	5.12	450-21	5.08	650-20	11.22
"Good" Whitewalls \$1 ea. Extra 32x6(8)				11.60	1000-22
BEST Whitewalls \$2 ea. EXTRA 32x6(10)				13.42	1100-22
					20.42

Buy the 'Right' Std. Guar. 20 Mos. Rugged Guar. 32 Mos.  
Truck Tires for "Your" Job.

**MILITARY MUD-SNO TREAD**

750-20Rd \$10.08 750-20Rg. \$14.52  
750-16Std \$13.52 900-16Std 10.58 900-16Rg. 15.08  
750-16Rg. 17.64 600-16Std 6.48 600-16Rg. 9.95

**BLATT** BLATT BLDG., GIRARD & LANCASTER AVES.  
DEPT. PM, PHILADELPHIA 31, PA.  
SEND CHECK OR MONEY ORDER & THIS AD.  
Shipments RUSHED Down South, Far-West & Up North

**PICBOOST** GIVES NEW LIFE TO OLD TV PICTURE TUBES!

EASY TO INSTALL! NO SOLDERING! JUST PLUG IN!  
Don't throw away your dim, fading picture tube. PIC-  
BOOST restores to full brilliance. Makes tubes last  
years longer. Thousands in use. Works on any  
size or type picture tube. Money back guarantee.  
If your dealer can't supply PICBOOST, order direct.  
Include make and model number of your set. **8.95**

C-B-C ELECTRONICS CO., INC.,  
Dept. M 1310 CALLOWHILL ST., PHILA. 23, PA.

**Freeland METAL BOATS**  
NEW LUMA TOP for '53  
Aluminum—12 ft.; 46" beam.  
Carry atop car. \$179.

GALVANNEALED 12'-14' \$78-\$130  
Rugged, all-welded construction.  
Fast, safe. Take motors to 10 H. P.  
Write Dept. 84 for folder.

FREELAND SONS CO., STURGIS, MICH. 302 S. WATER ST., TAMPA

**LOCKSMITHING & Key Making**

**PRACTICAL UP-TO-DATE COURSE—ONLY \$4.95**  
Easy-to-learn modern information for self-instruction.  
How to work on locks, de-code, make master-  
keys, repair, install, service, etc. For every  
handyman, home owner, carpenter, mechanic,  
service station operator, fix-it shop, hardware  
dealer, gunsmith. 53 plain illustrated lessons.  
FULL PRICE ONLY \$4.95. SEND NO MONEY.  
Just pay postman plus C.O.D. postage. Or send \$4.95 with order,  
we'll ship postpaid. Satisfaction guaranteed or refund.  
NELSON-HALL CO., 210 S. Clinton Ct., Dept. DX-2, Chicago 5, Ill.

**ELECTRIFY** **SEWING**  
your **MACHINE**

NEW LOW PRICE!  
**\$10.50** 1 YR.  
GUARANTEE

Buy direct from manufacturer  
and save! Kit comes fully  
wired, installed in a jiffy.  
Fits all machines! You get  
all-new parts:

- Motor & Bracket
- AC-DC 115v 60c
- Multi-speed foot control
- Cord set & block
- Easy instructions
- Steel pulley & belt

FREE... reg. \$2.95 chrome  
SEW-IT given with every kit.  
10 DAY FREE TRIAL — ORDER NOW!

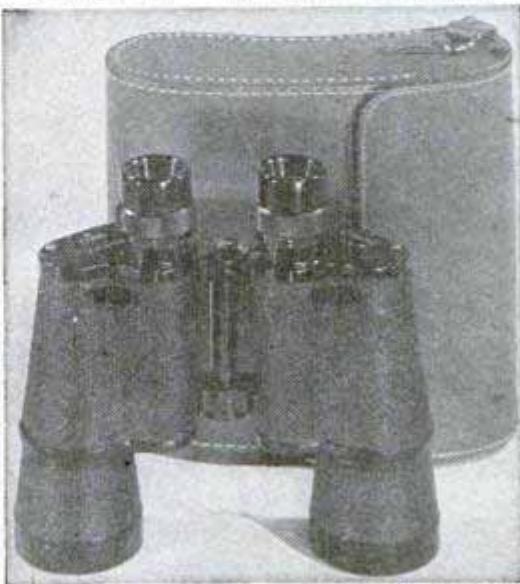
Send no money, pay COD or send money order and  
we'll pay postage. Please state whether wheel on your  
machine turns toward you or away from you. Shipping  
wt. 6 lbs.

**SENIOR SEWING MACHINE CO.**  
Dept. PM-47 BKLYN 5, N. Y.

BOX 54

# LOOK!

## Precision Binoculars at CUT PRICES



Coated • Prismatic • Color Balanced

**SPECIAL!**

16 x 50 mm

COATED CENTER FOCUS **66.50** Tax Paid

**TRY AT OUR RISK!**

**LOOK!**

10 x 50 mm

COATED **49.95** Tax Paid

**Absolute MONEY BACK Guarantee!**

Look to old reliable Thoresen's for fine Binoculars at deep-cut prices. Every binocular listed is COATED, ACHROMATIC and PRISMATIC! Best of all, they are FOCUS BALANCED, a Thoresen feature that gives enjoyable viewing without annoying aberrations. All have pig-skin or fine calf carrying cases & 2 straps. We defy ANY competitor to match this quality or price!

NOTE—ALL PRICES FULLY TAX PAID—NOTE

• 7 x 50 mm Individual Focus (No. 157)	<b>33.95</b>
• 7 x 50 mm Center Focus (No. 153)	<b>39.85</b>
• 6 x 15 Tiny Pocket Size (No. 154)	<b>16.75</b>
• 8 x 30 mm Center Focus (No. 146)	<b>38.50</b>
• 20 X Telescope, Light Pocket Size.	<b>8.65</b>

Send check or money order for quick prepaid delivery. COD's plus post. 5 Day Money Back Guarantee! Why pay more? Buy the Thoresen's way and **SAVE!**

352 Fourth Avenue

Dept. 6-D-500

New York 10, N. Y.

**TRY 30 DAYS AT OUR RISK!** Low in cost

New Advertising Machine  
Prints and Illustrates  
Gov't Post Cards

**FREE** Send name—  
learn how all  
types of business  
are boosting sales with Post-  
card Advertising. We'll also send  
**FREE** illustrated book of money  
making ideas for your business—  
complete, unique advertising  
plans—and **30-day Trial Offer.**  
CARDMASTER CO., 1920 Sunnyside Ave.  
Dept. 134, CHICAGO 40, ILLINOIS

5 year  
Guarantee

**For Permanent Boat Protection  
Use CASTOGLAS  
Liquid Plastic**

Now YOU can apply it like Paint

...it's easy, economical!

Also use it

For SEALING LEAKS  
For PATCHING  
For CAULKING  
For SKID-PROOFING  
DECKS

You won't have to paint and caulk your boat each year if you "plastic-plate" it with proved Castoglas (Liquid Plastic + Glass Cloth). It forms a light, almost indestructible skin which is lighter than aluminum and tougher than steel. Once on, stays on. Makes boats permanently leak-proof, rot-proof, mildew-proof, waterlog-proof, weather-proof. Its tough, resilient, light weight plastic bottom increases protection against sharp, hidden rocks, logs, ledges.

Apply to old or new boats, big or small. Will not rust, corrode, crack. Unaffected by gasoline, oil, alcohol, salt or fresh water, hot sun or below zero temperatures. Fine for skid-proofing decks, sealing leaks, patching, caulking. Saves money; a little goes a long way and lasts as long as the boat.

**FREE!** Folder tells you all about New Castoglas. What it is, How to use, Where to get. It's free. Write to:

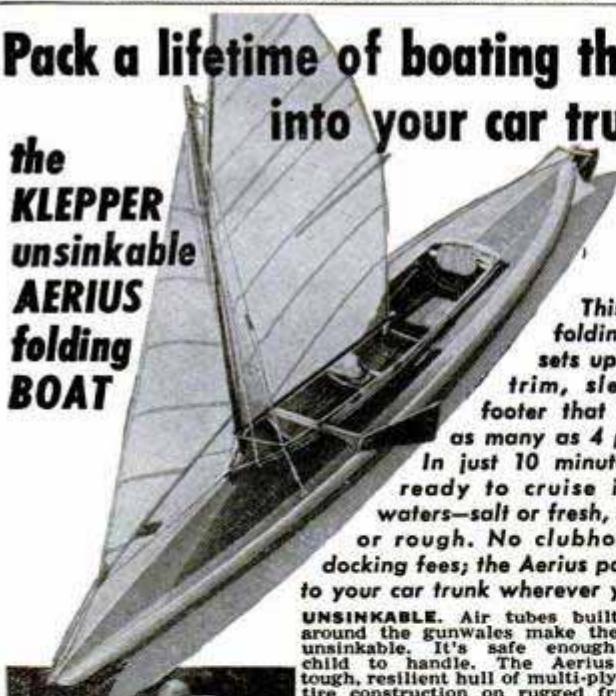
Marine Division, Dept. MD-1

**The CASTOLITE COMPANY, Woodstock, Illinois**

Serving Industrial Laboratories, Educational Institutions, Government Agencies and thousands of home workers in 48 States, Alaska, Hawaii and Canada.

## Pack a lifetime of boating thrills into your car trunk!

**the  
KLEPPER  
unsinkable  
AERIUS  
folding  
BOAT**



This great folding boat sets up into a trim, sleek 17 footer that carries as many as 4 people. In just 10 minutes, it's ready to cruise in any waters—salt or fresh, smooth or rough. No clubhouse or docking fees; the Aerius packs into your car trunk wherever you go.

**UNsinkable.** Air tubes built in all around the gunwales make the Aerius unsinkable. It's safe enough for a child to handle. The Aerius has a tough, resilient hull of multi-ply rubber-tire construction on rugged frames of seasoned mountain ash and plywood. Never needs painting or caulking.

**VERSATILE.** The Aerius tacks like a dream under sail, literally skims over the water with a light outboard, paddles better than a featherweight canoe. Perfect for shooting rapids!

Famous explorers including Byrd, Sven Hedin, Amundsen and others have chosen the Aerius for rugged dependability. Acclaimed by sportsmen everywhere for hunting and fishing, and for boating thrills!

**KLEPPER FOLDING BOATS**  
READY TO LAUNCH, from \$159.

In New York, visit our showroom.

**KLEPPER COMPANY**  
Dept. SR, 1472 Broadway,  
New York 18, N. Y.

**KLEPPER**  
THE ORIGINAL FOLDING BOAT

Write for FREE full-color folder today!

**PFLUEGER**

**Supreme**

REEL

**Prized Reel  
OF  
SUCCESSFUL  
ANGLIERS**

People who excel in any sport insist on the finest equipment. In fishing there's no substitute for Pflueger performance. Get the feel of a Supreme Reel, and enjoy better fishing.

\$35.00

THE ENTERPRISE MFG. CO., AKRON, OHIO  
89 years making fine fishing tackle

**PFLUEGER**

(Pronounced "FLEW-GER")

A GREAT NAME IN TACKLE

NO TANKS USED  
NEW SIMPLIFIED METHOD

SUCCESS IN THE  
ELECTROPLATING  
BUSINESS



**ELECTROPLATE**

ANY OBJECT IN HOME, SHOP, GARAGE OR START YOUR OWN WELL PAYING ELECTROPLATING BUSINESS

NOW, using NEW plating kit.

It's easy to electroplate any object. Complete kit and instructions on plating metal and non-metal objects, with nickel, copper, chrome, silver, gold, etc., plus full data on obtaining all the business you desire and make BIG MONEY full or spare time. ONLY \$4.95. SEND NO MONEY

—everything sent COD plus postage—  
OR send \$4.95 now and receive it postpaid. Money back in 7 days if not satisfied.

M. Z. NATIONAL SALES CO., 118-J West 42 St., N. Y. 18, N. Y.

**TROPICAL FISH**  
• BREED • RARE • FOR PROFIT! ... AT HOME! •

HELP US FILL HUGE DEMAND... Wonderful \$\$\$\$ Opportunity. No experience. No expensive equipment needed. SOME SELL FOR \$75 PAIR AND MORE! Fascinating! Beautiful! Entertaining! We supply everything. Make Big Money spare-time at home.

**FREE!** HOME-BUSINESS PLAN, Illustrated Folder, all DETAILS  
Write: TROPICAL FISH BREEDERS OF AMERICA  
Dept. D4, Los Angeles 15, California

SAY YOU SAW IT IN POPULAR MECHANICS

BRAND  
NEW



**30 DAY FREE TRIAL**

High Power

**BINOCULARS**

Finest Precision Optics

Featherlight

Money Back Guarantee

Easy Pay Plan

Leather Case Incl'd.

**Free!** Catalog & Book

"How to Select Binoculars"

Dealer Inquiries Invited

Bushnell Bldg., Dept. M64

Pasadena 1, Calif.

## SAVE THIS AD FOR VALUABLE REFERENCE

Read these details of the MAGA-LU-X's, Western Germany's Marvelous New Gemstones. 1952 brought rumors, engineering magazine hinted at it. About to Be Imitated—Never Duplicated, STARFIRE gives you MAGA-LU-X & MAGA-LU-X-4.

## NEW BRILLIANT GERMAN BLUE~WHITE & HARD



It Doesn't SCRATCH, CHIP or BREAK!

\*\*\*\* I. BLUE-WHITE and DIAMOND-LIKE HARDNESS, scratches glass. Diamond powder impregnated cutting wheels used. II. Same weight per dimension as diamonds. III. Sparkles in DAYLIGHT as well as SOFT LIGHT IV. No deterioration or lustre loss. V. Anyone can set. VI. Wide table—Full diamond spread. VII. Exquisite in all diamond shapes—has not the "glassy transparent center" of cheaper imitations. VIII. Like diamonds, MAGA-LU-X is only West German synthetic in full range from 1 point to 10 carats as standard and up to 35 carats to special order. Again this is because MAGA-LU-X is flawless—not limited to a few carats. A carat is 100 points. IX. MAGA-LU-X is NOT Zircon, Rhinestone, Titania, or the new German PLUMBUM silicon dioxide. X. In our New York office we keep a transparent box containing a genuine diamond and a MAGA-LU-X. Jewelers and appraisers have gone away baffled. Everyone is welcome to try his luck. XI. Doesn't scratch, chip or break.

\*\*\*\* STARFIRE CORPORATION, importers of MAGA-LU-X, have not released any MAGA-LU-X to any Wholesale Ring Manufacturer, Supply House, Credit Jeweler, Mail Order Company, Department Store or ANY OTHER OUTLET. Here is the STARFIRE MAGA-LU-X Guarantee in writing. \*\*\*\* Returnable within 120 days for ANY reason. Full Refund. Replaced WITHOUT CHARGE if damaged for ANY REASON within a lifetime. This includes a hammer blow. Returnable for FULL CREDIT against a larger MAGA-LU-X within TWO years. \*\*\*\* No synthetic stone is better than its written guarantee.

\*\*\*\* AND the best guarantee is when STARFIRE will stand behind MAGA-LU-X unconditionally both in the U.S. and overseas. \*\*\*\* STARFIRE CORPORATION ships each MAGA-LU-X in a "diamond paper" with weight, date and registry number which is recorded in your name. If anyone, anywhere, anyhow, offers you something like MAGA-LU-X just ask for the original wrapper. There is only one MAGA-LU-X—Order genuine MAGA-LU-X—accept no substitute. We prefer to sell the uncut MAGA-LU-X for setting later. This is so you can verify its superiority. A piece of glass can be cleverly mounted in advance in a two-tone mounting and none the wiser. However, for those in remote localities you may select your MAGA-LU-X, cut out a picture of what you'd like from some magazine or catalogue and STARFIRE will individually CAST TO YOUR ORDER a similar mounting. 14kt, 18kt, white or yellow gold or platinum. This way you get something original and inexpensively. We use only solid heavy castings—no cheap stampings. As an example our classic engagement MOUNTING IS ONLY \$10.00 in 14kt. You save the overhead of catalogues and time payments. MAGA-LU-X comes in confidential box, insured. Estimates given gladly. We are a technical house—gemological questions answered—send us your problems. EMERALD, MARQUISE, SQUARE, TRIANGLE AND 58 facet BRILLIANT cuts. Only FIFTEEN DOLLARS THE CARAT. 20% tax. 35¢ shipping charge per order, for those unable to visit us.

\*\*\*\* MAGA-LU-X and MAGA-LU-X-4 "dimension of spread" chart in millimeters: Round 1 kt. 6.30mm, 1.50 kt. 7.20mm, 2 kt. 7.95mm, 3 kt. 9.15mm, 5 kt. 11mm—Emerald 1 kt. 6.7x5mm, 2 kt. 8.2x6mm, 4 kt. 10.4x8.5mm.—Triangle 1 kt. 7mm—Marquise 2 kt. 12x6mm, 3 kt. 13x7mm. Genuine MAGA-LU-X & MAGA-LU-X-4 have a diamond spread—Titania, etc., is 30% heavier, call you need is genuine MAGA-LU-X our "unlike"—some mountings and you're in business because you can't break genuine MAGA-LU-X when setting.) 14 kt. solid white or yellow gold mountings are: Ladies'

SYNTHETIC  
1/67th  
price  
of  
DIAMONDS  
(at retail price of fine  
diamonds up to  
10 carats.)

UNCONDITIONAL  
GUARANTEE

classic engagement \$10.00, Off-center double main stoner \$15.00, engagement 6 side stoner, \$15.00 (all other similar types in catalogues same price). Man's Extra-Heavy massive Gypsy \$25.00, Man's Heavy Box \$20.00. Lots of 12 to 36 15% discount (All our products take quantity discounts) Assorted, mixed sizes if you wish. Wh. Gold 10% extra. Save this valuable technical reference ad. This is the 1st time to our knowledge, the inside wholesale technical facts have been advertised to the public.

\*\*\*\* FOR THE TRULY DISCRIMINATING PURCHASER, we announce with pride the availability of MAGA-LU-X-4, a very recent later development (experimental series number four). This refinement represents the ultimate in synthetic gems. More expensive but worth it. MAGA-LU-X-4 is available in limited quantities TWENTY DOLLARS the carat. 20% tax.

\*\*\*\* THOSE WISHING THE CHEAPER product featured elsewhere may have it at \$10.00 per carat, limited, of course, to the -4 carat sizes offered elsewhere. 30 day Inspection Privilege and we'll match whatever guarantee is being given for this material elsewhere.

\*\*\*\* INSPIRED BY MAGA-LU-X, STARFIRE'S designer offers SOMETHING BRAND NEW, not sold anywhere else. EXTRA WIDE, EXTRA THICK, SOLID GOLD WEDDING BAND in flat (2mm thick) or barrel type. In 1/4", 3/8", 1/2", 5/8" or 3/4" wide. We sell you by the pennyweight, same as refiners. This is really wholesale. 24 kt. is gold .998.5 fine, 14 kt. is .583.3 fine. We charge you only for fine gold content, alloy metals and manufacturing costs. This gives you a chance to order as big as you want and make an even bigger hit with your wife. Virtually by the Nugget, as it were. A pennyweight is 1/20th oz. 14 kt. \$2.75 pwt. 24 kt. \$3.70 pwt. For example a 1/4" wide x 2mm thick 14 kt. in popular size #6 is about 12 pwt. White gold .997.5 extra. Such a ring with 10 five point MAGA-LU-X's has been estimated at \$350.00 were it real diamonds in a retail store. \$2.50 each stone setting charge, plain or starred. 1 to 5 point MAGA-LU-X's suitable. Figure at same \$15.00 carat. Advise exact ring size—no resizing on these heavyweights possible, send only \$10.00 deposit, hal. C.O.D. (we have to weigh it after to be fair.) Stones can be set straight around, in rows side by side across or zig-zag. Send simple sketch—we'll follow. Synthetic RUBIES \$10.00 carat, 20% tax. Mix if you wish. STANDARD IRONCLAD MAGA-LU-X GUARANTEE.

\*\*\*\* OTHER SYNTHETIC GEMSTONES at wholesale prices. STAR SAPPHIRES and RUBIES, very hard, gorgeous deep colors, 6 pointed stars #1 grade, 6 carats and larger \$7.50 kt. Wonderful for MEN'S GYPSY RINGS (Mounting only \$25.00—heavy massive 14 kt. gold) or EARRINGS (mountings only \$15.00 pair, pierced or screw). TITANIA, latest improved \$24.00 retail grade, \$6.50 kt. 1 kt. and larger, 58 facet BRILLIANT cut, only. Genuine ZIRCONES (Siam) 1 kt. 9kt. 2 kt. \$3.50, 3 kt. \$7.25, 4 kt. \$12.00, etc., 20% tax (more valuable when larger). Rd. & Em. cuts, 30 Day Inspection Privilege. These stones, 10-25 kts., 10% discount, 26-50 kts., 15% disc., 51-100 kts., 20% disc. Rated acts open, non-rated 20% with order bal. C.O.D. All stones shipped full weight. Have your jeweler weigh our stones.

\*\*\*\* ORDER EARLY for Mother's Day, June Weddings, Father's Day, Graduations, and Engagement Rings. Recently a young couple bought a 2 carat and 25 point MAGA-LU-X at a cost of \$40.50, 20% tax incl.—the girl was radiantly happy—any jeweler probably set it for a few dollars. The young man suggested he might get a small snort car with the difference.

\*\*\*\* SUBURBAN EXECUTIVES who enjoy gemology may send a \$1 bill for our precision JEWELERS' MICROMETER (list price \$2.40) 3" long, jewel-like, calibrated in mm and cm, opens to 2", "Mikes" anything, shafts, bearings, etc., AND diamonds, etc. Limited Supply—try one. 30 Day Inspection.

\*\*\*\* SPECIAL IMPORTED OPTICAL OFFER—These instruments were recently delivered to importers short of cash—we have checked these carefully. 60 day Trial Period with a ONE YEAR Replacement Guarantee. 7x35mm C.F. coated, \$37.50, 16x50mm C.F. coated, \$40.95, 8x30mm C.F., \$25.50, 10x50mm L.F., \$42.40, 6x15, 1.5F. coated, \$13.50, 7x50mm L.F. coated TWENTY FIVE DOLLARS, C.F. addl. \$4.00. Each handsomely leather cased with straps, 20% tax. Large items add 75¢ shipping charges, small items 40¢. Precision pocket microscopes, 25x, \$2.00, 20x to 60x, \$2.95, 30x to 70x \$4.95, table models, 80x \$4.95, 200x \$10.95. Heavy Professional Medical Type, 1.500x, \$175.00, 3x45mm Magnifier, 90¢. Also, just a few 15x40X Wollensak coated telescopes, \$25.00—1st come, 1st served. This is a rare bargain.

OPEN 9:30 A.M.—5:30 P.M.  
Reference CHASE NATIONAL BANK, N.Y.

STARFIRE CORPORATION  
Dept. B2, 570 7th Ave., New York 18, N.Y.  
SAVE THIS AD FOR VALUABLE REFERENCE

## 250 POWER.....



Complete  
Telescope Lens Kit  
only \$3.49  
postpaid

Conquer Space. Explore the Universe. Planets, Moon Craters, New Stars, etc. Complete Lens Kit consists of 80 inch focal length ground and polished objective lens, eyepiece lenses for 50 POWER, 100 POWER, 150 POWER, 200 POWER, 250 POWER, and all necessary lens fittings. Easy to make from simple step by step instructions. Tripod and mount not included. Money back guarantee.

BUSSE SALES CO., Hartford, Conn., Dept. PM10

**EXTRA WEAR...  
EXTRA COMFORT!**

**WOLVERINE  
PIGSKIN WORK  
GLOVES**

Genuine Pigskin, tanned by the Secret Wolverine triple-tanning process. Amazing comfort and extra wear!

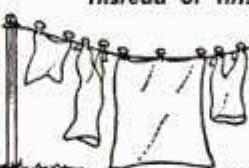
A New Pair FREE If They  
Dry Out Hard or Stiff!

Just try on a pair. No other work gloves in the world like them. Just drop us a postcard for name of your nearest dealer and a useful gift FREE to you besides. Wolverine—Box K14—Rockford, Mich.



## YOUR WASHDAY HELPER

Instead of this



Have this



SAGGONE takes the place of the prop that falls, leaving your wash drag. No more clothes soiled from whipping around prop. No prop to stumble over. Your line will not sag. For only \$1.00, we will mail you a clothes-line tightener that will keep your line rigid. Works wonders on wire, rope, plastic or nylon. Guaranteed unbreakable and rustproof. Ideal for Apt. or basement lines. Does away with those sagging lines you always get hooked on between washings.

CLIP COUPON AND MAIL NOW

MAH & CO.  
3066 ARCADIA, OMAHA 11, NEBR.

Enclosed find \$1.00. Send postpaid one SAGGONE clothesline tightener. Satisfaction Guaranteed or money back. Instructions included for quick, positive, permanent adjustment.

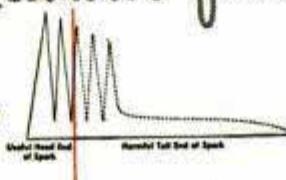
Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

(Please Print)

# How a tiny Auto-Lite *Resistor* helps give you better car performance!

When you replace old worn out spark plugs with new **AUTO-LITE** Resistor  Spark Plugs the tiny 10,000 ohm  resistor filters out harmful end of spark  permitting a wider gap  setting to deliver a super spark for quick  starts smoother  performance and double  life

You're  
always  
right  
with...

## AUTO-LITE *Resistor* SPARK PLUGS



In faraway Korea a Navy plane crashes.  
Hours later a special board in Norfolk  
is studying why—and writing new rules  
so it won't happen again

WRITTEN SO YOU CAN UNDERSTAND IT  
VOL. 99 NO. 4

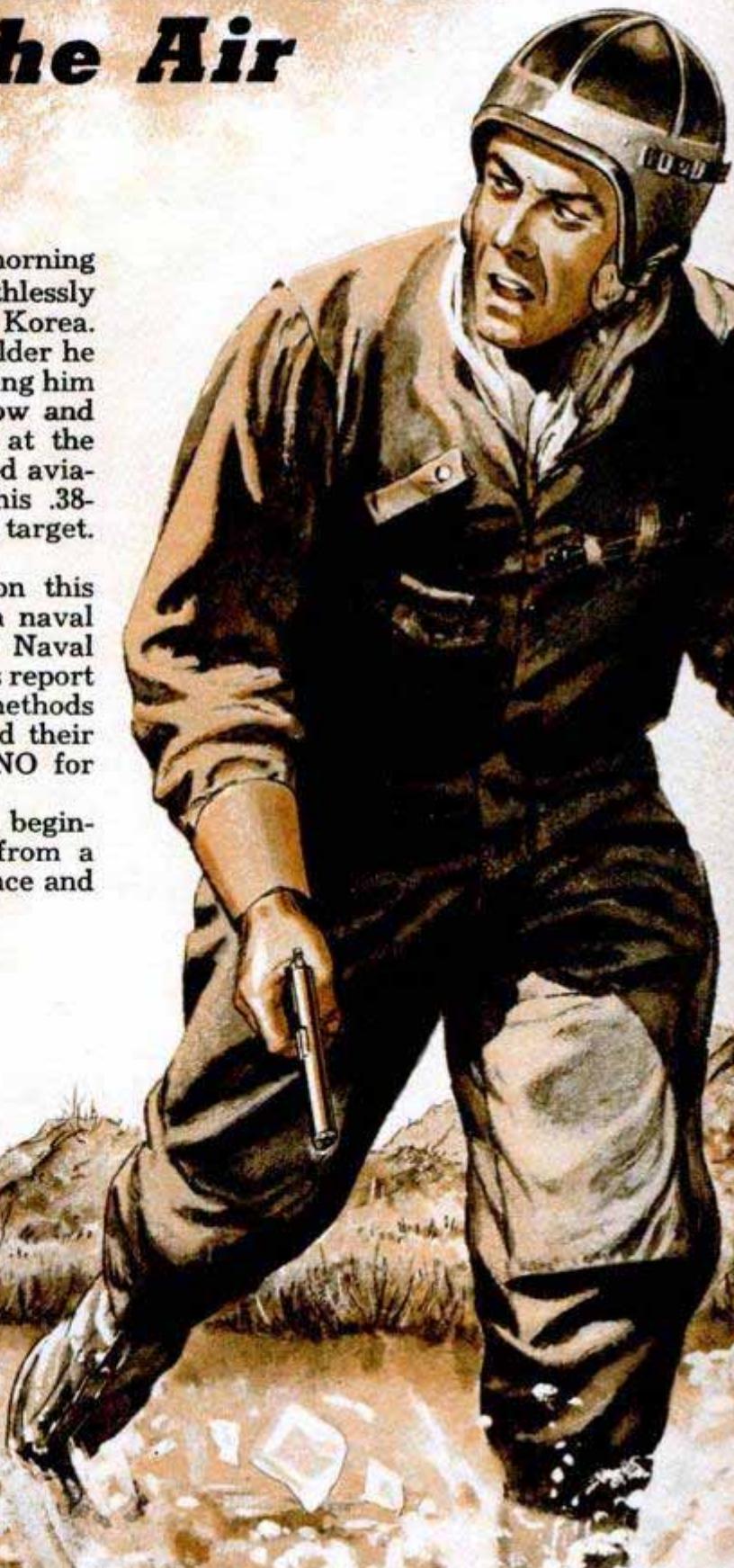
# **They Outsmart Death in the Air**

**By Frank J. Madden**  
Chief Journalist, USN

**I**N THE EARLY LIGHT of a winter morning a naval fighter pilot was running breathlessly over the frozen rice paddies of North Korea. Every time he looked back over his shoulder he saw a monstrous Communist soldier stalking him "with an easy half walk, half lope." Now and then the soldier would stop and shoot at the fleeing airman. Only once did the downed aviator return the fire. Three shots from his .38-caliber automatic. All tracers. All wide of target. After that his gun froze.

Within 96 hours a complete report on this pilot's experience was in the hands of a naval safety representative of the Chief of Naval Operations in Washington, D. C. From this report a group of veteran pilots studied the methods and evading tactics used by the flyer and their recommendations were passed on to CNO for final action.

This report was thoroughly discussed, beginning with the launching of the plane from a carrier at 0530 on a weather-reconnaissance and heckler mission.





These photos are of a single training accident on a carrier. Here pilot crashes through a barricade



Plane moves along at high speed toward the craft parked on the deck as pilot tries to avert crash



The crash — four other jet aircraft are damaged  
Damaged jets afloat alongside carrier. Cause of accident: Pilot tried to land despite "wave off" signal



Plane goes overboard taking two other jets along



It was learned the pilot started on a routine predawn mission on the east coast of Wonsan-Hungnam area where the Navy's fleet commander knew the Reds were using roads and railways to ship in supplies and ammunition to front-line troops.

When the pilot's plane was airborne he headed for the target area, with a second plane flying wing. They reached the beach and completed their weather assignment without incident. As the wingman peeled off and headed in a northerly direction he quipped over the radio, "Good hunting!"

The pilot of the lead plane headed west and was 10 minutes' flying distance from Wonsan when he spotted, in the darkness below, 30 or 40 trucks with lights burning. His altimeter showed 7000 feet as he started his dive. Upon hearing the roar of the engine the trucks quickly doused their lights.

Two of the truck drivers must have been doping off, for as he circled, making certain he was over the convoy, their lights continued to burn. The convoy had been brought to a halt; playing possum, thought the pilot, hoping the darkness would conceal them.

He glided in for the attack, strafing the entire area around the lights. In the eerie light made by his tracers and bursting shells the pilot saw what appeared to be smoke and assumed he had damaged a few of the trucks.

He gunned his engine to regain altitude and have another look. Three trucks had turned on their lights and were hurtling down the road in an effort to escape. This time in addition to strafing, the pilot made two separate bomb runs. With so many targets to pick the pilot maneuvered crazily to get a shot at most of them. He called his wingman and told about the trucks. Cutting in on his channel came the excited chatter and cursing of dive-bomber pilots from his own air group as they worked over a train chugging toward the safety of a tunnel. He decided to have a look at the Hamhung and Hungnam areas where the others were operating.

When he arrived the dive bombers had made a mess of scrap metal out of the engine. The wingman joined him now and they left the dive bombers and went hunting south of the city.

The lead pilot discovered a nice juicy target—a whole large bridge—and made a run on it letting go his last two bombs. He pulled out about 2500 feet and was well in his recovery when he felt a jolt.

He was hit by the first burst of antiaircraft fire. The battery of AAs had let him dive in close before they opened up. When they saw smoke trailing from his plane they really went after him. Tracers were bursting all around as he circled to avoid

going over Hungnam which was studded with antiaircraft and flak would be heavy.

He finally got out of range of the exploding shells and headed, he hoped, for the water and safety of Navy ships. He pushed the throttle to the firewall but the plane continued in a glide. He figured, "This is it," and commenced preparation for ditching the plane.

He switched to the guard channel on his radio and transmitted, "Boys I'm hit and trying to make the water."

The wingman "rogered" the emergency call with, "I got you."

The dead-engined plane had gained altitude on pulling out of its dive and was nearly at 3000 feet. The pilot kept heading due east and sweated out every inch of ground he passed over. He kept thinking of the command ship and if it had a helicopter on its way to pick him up.

This proved to be a correct assumption. His wingman immediately switched to the guard channel and gave a detailed report as to where they were and the extent of damage to the plane. He also asked the aircraft carrier to set up a Rescue Combat Air Patrol (ResCap) operation.

One of the command ships in charge of close support, bombarding the Commies in the area, sent out the following dispatch: "Bird Eye from Rover Boy. One downed pilot in area AXGH4624. Send windmill. Over and out."

Heading into the beach the helicopter pilot notified a destroyer to have a doctor standing by. ResCap planes joined the helicopter as escort.

In the meantime the damaged plane began to lose altitude and fire broke out under the cowling and in the gas area. The pilot had to ditch fast now as he was too low to bail out and flames were licking back toward the cockpit. Coming in low he saw some power lines he could not clear but they gave way upon impact and he hit the ground with wheels and flaps up. The landing was smooth enough, but he experienced the thrill of riding a rapids in a light boat as the plane bucked and twisted, plowing through a dozen irrigation-ditch embankments.

He was struck by the terrifying thought that he had forgotten to jettison the plane's empty belly tank and to open the canopy. An explosion, followed by fire and himself trapped in the cockpit flashed before his mind.

Luckily there was no explosion and he had no difficulty opening the canopy manually. He jumped clear of the flaming wreckage, and ran about 15 yards to an irrigation ditch. In his haste he had left his parachute, which was contrary to advice given by his briefing officer because

1



3



**Photos on these two pages show what happens when jet pilot makes too low an approach.** 1. The plane crashes into ramp. 2. Momentum raises fuselage as craft breaks in two. 3. Nose and cockpit on deck

of its many uses in evasion and survival. Any thought of recovery was dispelled by the raging flames and the thought of the gas tank blowing up.

Resting on his elbow, he sneaked a look around, surveying the surroundings, and thinking of what to do next to get back to his ship. He saw the wingman's plane dive low over the burning plane and thought happily that he was seen as the wingman wigwagged his wings. The wingman never did see the pilot nor did any of the ResCap until much later.

The accident report pointed out "The light was poor in the early dawn. This prevented the ResCap seeing him. In fact the pilots orbiting above the ground didn't see anything but the burning plane. A downed pilot must do everything possible to identify his location."

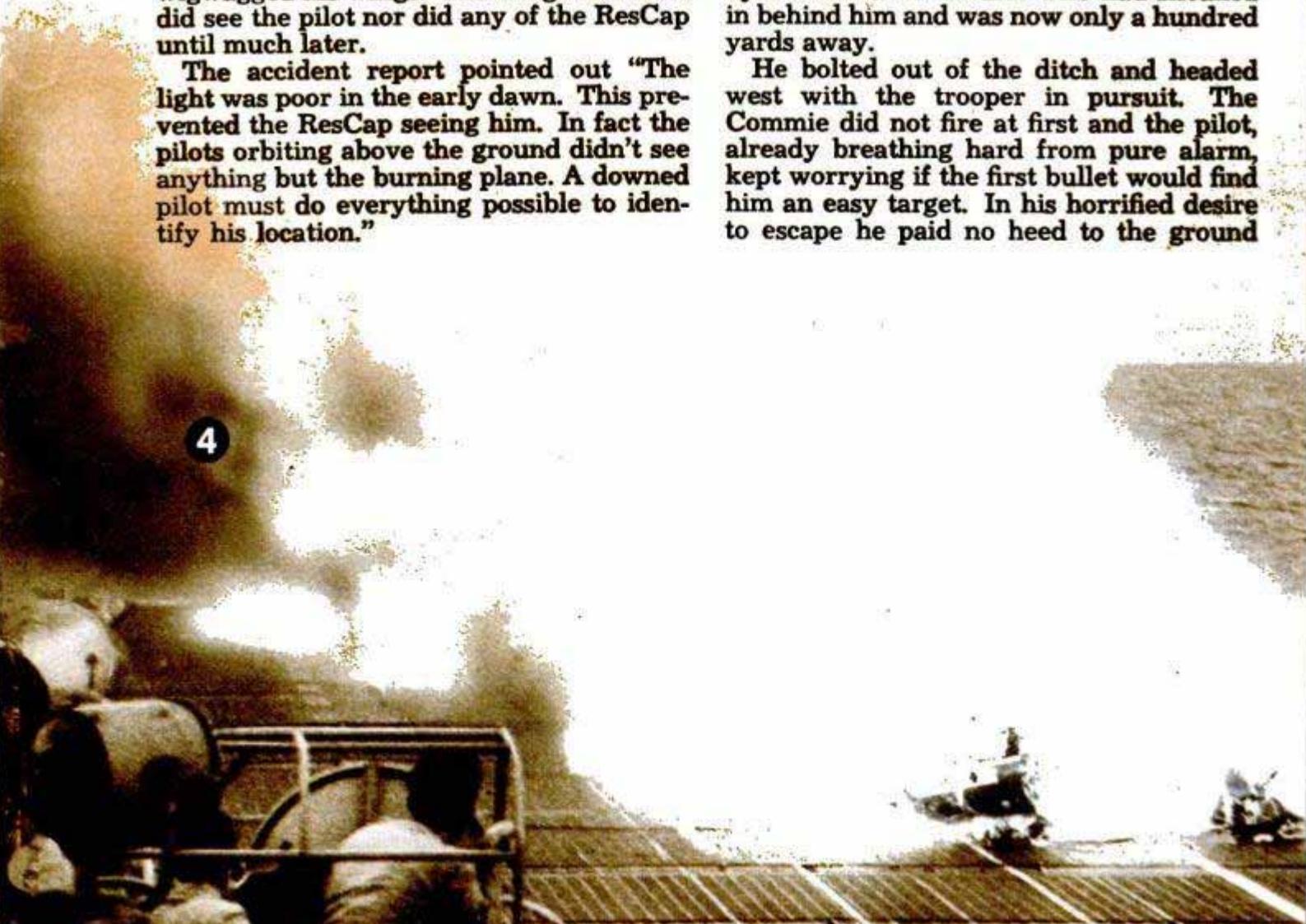
Official U.S. Navy photographs  
4. Flight deck is engulfed with smoke and flames as wreckage comes to halt after spewing aviation gasoline the length of deck. 5. Fire crew goes into action to save pilot and quickly put out the fire

There were buildings cutting off the pilot's route to the water and he knew he would have to go around them rather than take a chance of going through town. A couple of hundred people gathered on the outskirts watching the burning plane but made no move toward him. The pilot didn't fear them, believing they were civilian farmers.

He was startled out of his reverie, though, by a Communist soldier who had sneaked in behind him and was now only a hundred yards away.

He bolted out of the ditch and headed west with the trooper in pursuit. The Commie did not fire at first and the pilot, already breathing hard from pure alarm, kept worrying if the first bullet would find him an easy target. In his horrified desire to escape he paid no heed to the ground

4





and fell in holes and ditches, stumbled to his knees, got up, ran again and fell again. The soldier continued the chase in a monotonous trot.

The only time the pilot could gain was when he would stumble across a water-filled irrigation ditch, protected from the ice-cold water by an antiexposure suit which had just been issued to him. This exposure suit originated as a result of accident reports which related the deaths of pilots due to exposure in frigid weather. The suit had an inner section which absorbed perspiration and rubber-cemented boots with a trouser combination which protected his legs and prevented ice, snow or water contacting the feet.

The pilot, sensing his pursuer's reluctance to dash through the icy water, purposely picked out sections of rice paddies that were badly flooded. Since this was rugged going, because of the muck and broken roots, he took to diving across ice-covered ditches on his stomach. The ice in many instances was not thick enough to hold his weight.

A second soldier joined in the race and

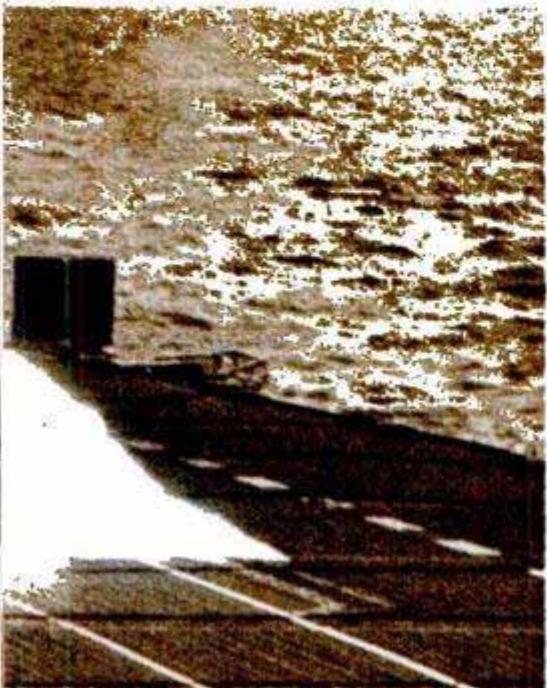
he was either unarmed or failed to fire as the pilot didn't recall anyone but the first Commie firing. Still, more bullets seemed to be kicking up the snow around his feet.

By now it seemed to the pilot that he had run halfway across Korea. Actually the distance was about three miles.

With the increase in firing, the pilot determined that they meant to kill him and should he fall and not be able to rise, they would put a bullet through his head. This spurred him on; everytime he heard a "ping" he would duck sideways and try to put greater distance between himself and the rifle. The pilot had run for nearly an hour.

When he fired his gun and it froze, he realized it was a miracle that he even got off three shots for it was muddy, wet and coated with ice. He beat on the gun mercilessly to free the cylinder release. It was to no avail and he attempted to force the hammer back to fire the remaining shells in the chamber but this also proved futile. When the Commie saw what he was attempting to do he would let go a few shots.

(Continued to page 278)





It takes 90 tons of crushed ice to cover Belknap ski run (above). Ski-club members start work in the small hours of the morning, finish job by covering run with insulating layer of straw. Just before meet starts, they wade in, carefully rake it off (right)

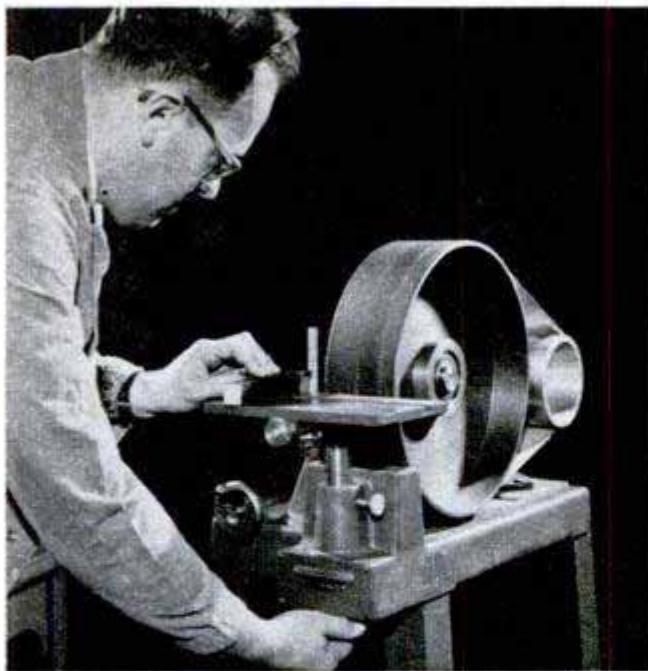


Skier ends thrilling ride with head-over-heels plunge through strawstack (above). Carpet of straw at base of slope slows speeding skiers, cushions fall. Skier (below) takes to air as hundreds of spectators at bottom of hill hold their breath

## Midsummer Ski Meet

SKIING is so popular around New Hampshire's famed Belknap recreation area that people can't forget the sport even when it's 90 degrees in the shade. Comes mid-summer, the urge to ski is so strong that action is taken. Ninety tons of ice hoarded from the previous winter are chopped and scattered down the Belknap ski run, and the biggest tournament of the year is staged in blistering summer heat. Members of the Winnepausakee Ski Club start preparations in January. Ice is cut from one of the frozen lakes in the area and stored in a local icehouse. When tournament time comes, it's trucked to the site and chuted down the hill, packed down with skis and garden tools and covered with protective straw until the meet begins.





### Silicon-Carbide Tool Grinder

Tungsten-carbide tools, so hard they are usually sharpened with a diamond wheel can now be ground and honed with an abrasive belt of silicon-carbide paper. The belt rides on a 14-inch cast-iron contact wheel specially made for extreme hardness. Two steps in the traditional grinding process are eliminated by the new method, which is said to cost less and double the life of cutting edges.

### Baby Harness Prevents Falls

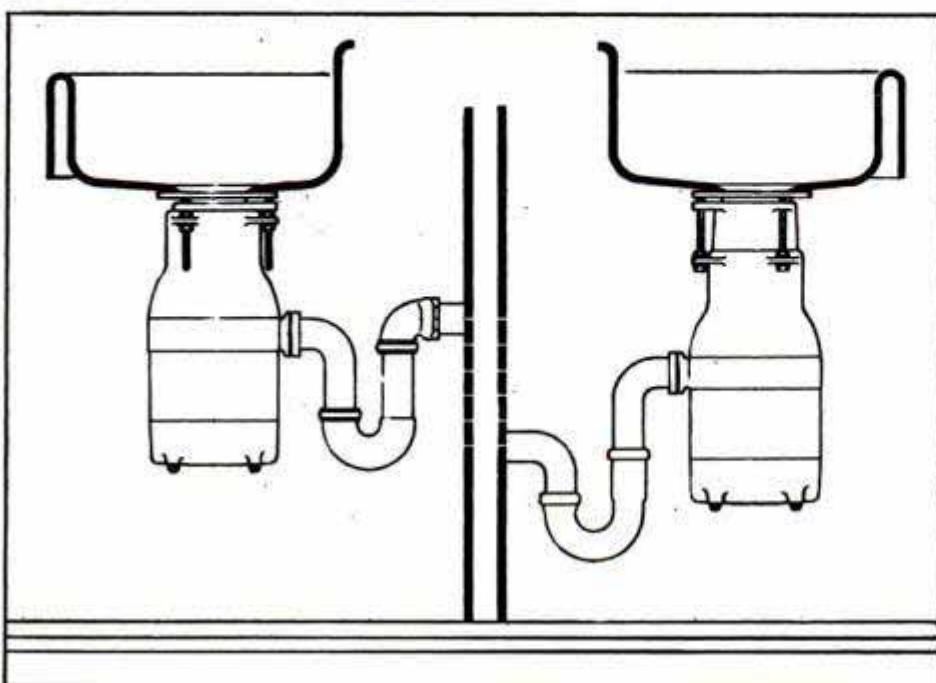
Small children stand a better chance of surviving automobile accidents if they're anchored to the front seat with a new safety harness. Quickly hooked over the back of the seat, the device mounts a heavy-duty spring which breaks the force of sudden stops and prevents the web harness from snapping. An adjustable snap on the harness allows the child to stand, sit, lie down or move about in comfort.

### Telescoping Food Disposer Easily Installed in Most Sinks

Expanding or telescoping as necessary, a food-waste disposer now available fits almost all sinks. Although it has a full-size shredding chamber, the unit can be roughed-in six inches below the sink. If necessary, the roughed-in range can be ex-

tended to 11 inches. The unit has only one moving part, automatically reverses itself and has a self-service features that permits the average householder to relieve jammed conditions. The unit appeals especially to those who move often.

Diagrams show how unit expands or contracts to fit available space. Right, unit has reversible shredders



By F. Leland Elam



On museum visits, young lady learns that "Porgie" porcupine's favorite food is corn on cob. Left, museum provides cages for animals

# Want to Borrow a Porcupine?

Gophers and indigo snakes, foxes, skunks and many other animals can be checked out of the "lending library"



**I**MAGINE WALKING into a museum and stepping out again with a wild animal to take home and keep for a week. That unique service is available to boys and girls in Sacramento, Calif. There the California Junior Museum operates, as part of its Live-Museum Program, an animal "lending library" where a child, seven years old or older, can borrow a pet without charge for a week at a time.

There are over 60 animals for circulation in this library. Included are skunks, porcupines, possums, foxes, jack rabbits, squirrels, turtles, white rats, white mice; a wide variety of birds such as a screech owl, horned owl, sparrow hawks, linnets, sparrows, blackbirds, crows, magpies and a large variety of lizards and nonpoisonous snakes. Also in the Live Museum are a large number of animals and birds which have not been "home conditioned" to a point where they can be taken out of their cages and handled by the youngsters. From 20 to 40 animals, birds and reptiles are loaned each week.

The animal lending library was created for a number of purposes. First, so all children could have the opportunity of caring for an animal pet; second, because children should become acquainted with native

animals — impossible for some youngsters who have little opportunity to get to the woods and fields; third, in the interest of humane education; and fourth, to teach children the proper care of native animals.

Animals are loaned not only to the children, but also to hospitals to entertain children who are ill. Library animals are often borrowed by school teachers for use in their classes.

No child is allowed to take out an animal until he has filled out an information card, so museum officials will know he is in a position to give the animal proper care and attention.

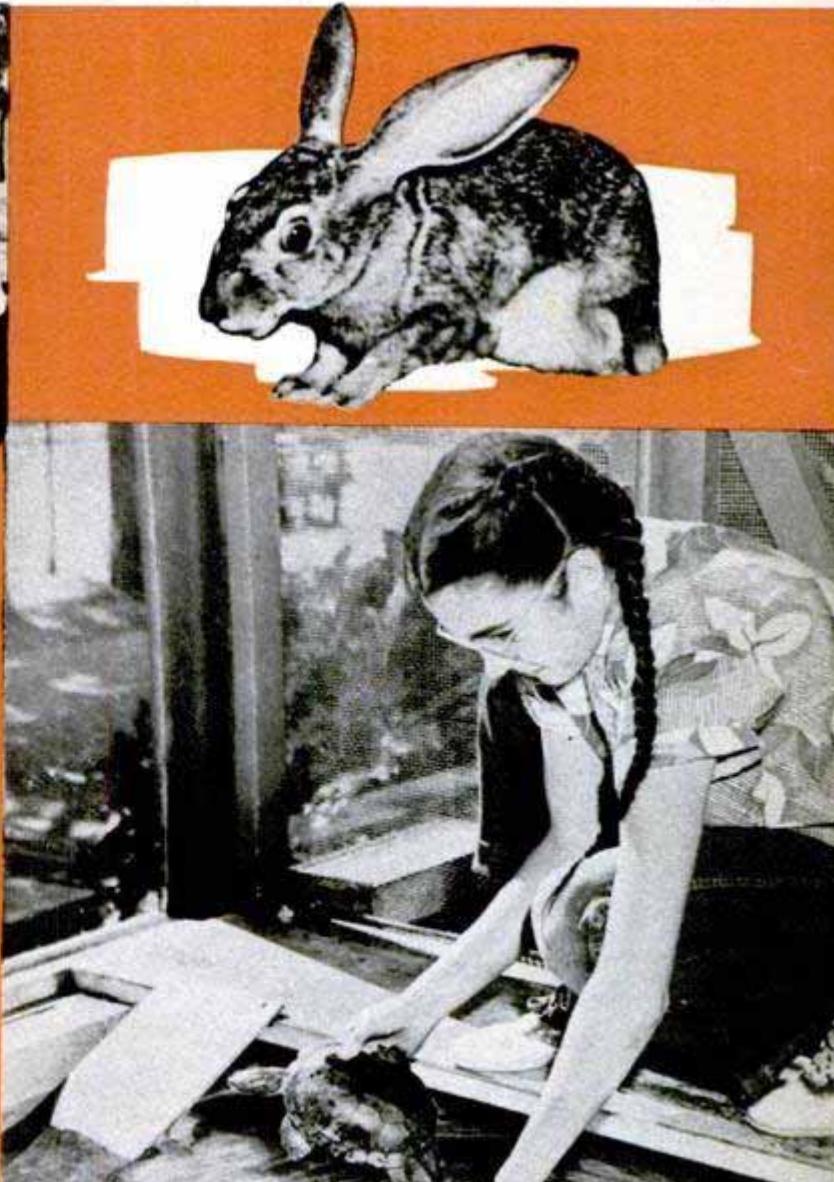
For instance, if a child wants to take out Blossom, the skunk, he must know that Blossom can be fed eggs, milk, meat, dog biscuits or vegetables; that she can be fed just as much as she will eat, for she will stop eating when she is full; that she must be fed once a day in the evening.

The child must know that Blossom, when placed out of doors in her cage, should be put in the shade and at no time left more than 10 minutes in the sun. In the house she should not be in a draft, and she needs an even, moderate temperature.

Blossom, he must know, should be picked up by putting hands under the hind legs



These kids tote home a cage of white rats. No trouble — they must have parent's permission



Right, intrigued by turtles, youngster must have a pond before she can check out her favorites



At home, jack rabbit gets lavish treatment. Girls soon learn it prefers spoon-fed applesauce to carrots

Before checking out owls, girls must fill out form to prove they know how to take care of the birds



and the chest, that she shouldn't be handled more than a half hour at a time, before feeding, not when the temperature is hot and no more than three to five times in one day.

The borrower must know something about the history of the animal—in the case of Blossom that she is a native of North America and other parts of the world.

He must know whether the animal he wants to borrow lives in caves, dens, trees, on the ground or burrows under the ground.

The child can't bluff his knowledge for each animal requires a different set of answers. If the questions are not answered properly the animal is not loaned.

The child must also submit a form signed by a parent, granting permission to borrow one of the animals and giving assurance the parent will be personally responsible that the child follows instructions for the care and attention of the animal. The parent must also agree to provide whatever is necessary to maintain the animal while it is in the home.

No youngster is allowed to take home an animal unless he is a regular visitor of the Live Museum. The library staff thus can make certain the child is properly qualified to take one of the animals.

And where can boys and girls who are interested in borrowing wild-animal pets learn about them? Right in the Live Museum. There they can handle the animals, watch their feeding and care. ★★★



Water jet saturates sand beneath vibrating packer. Right, big tube on crane packs column 12 feet deep



## Earth Compactor Permits Construction on Sand

Built upon sand, a Florida chemical plant will rest on solid pillars of compacted soil produced by action of a packing device. A huge tube which is vibrated by an electrically driven unit inside it, the packer produces a centrifugal force of 10 tons. Suspended from a crane and guided by vertical timbers, it is lowered into the sand while a water jet at its tip forms a saturated sand mass into which the vibrator sinks. Low-

ered to a depth of 12 feet or so, it is withdrawn and fresh sand added in one-foot stages until the hole is filled with compacted sand. Result is a solid column of sand eight feet in diameter, able to bear heavy loads and resist shock and vibration. Engineers say the process can be used for many construction purposes in sandy areas.

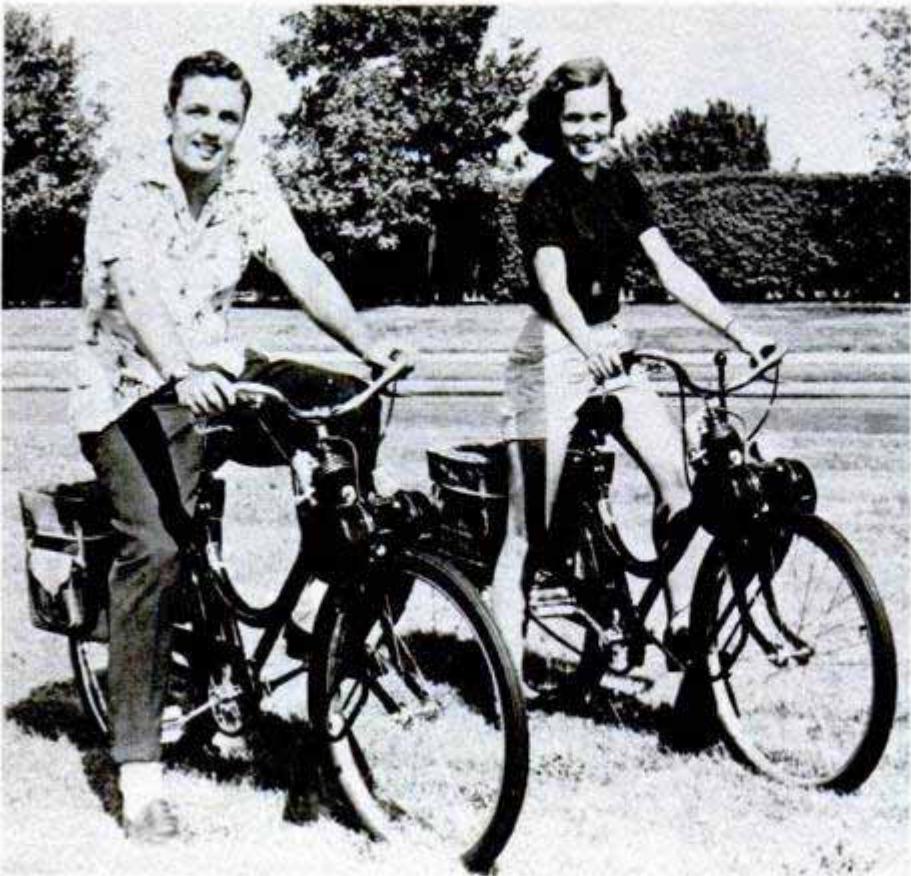
## Midget X-Ray Unit for Industrial Applications Weighs 150 Pounds



Compact design, reducing bulk to  $\frac{1}{2}$  and weight to  $\frac{1}{8}$  of conventional units, makes a portable X-ray machine easy to carry to the job. Operating at 75,000 to 250,000 volts, the 150-pound machine can X-ray steel up to  $3\frac{1}{2}$  inches in thickness. It is only 15 inches in diameter and 44 inches long. Because of its compact design and protruding, ray-emitting snout, it can take "inside out" X-ray pictures. This is accomplished by carrying the unit inside the object to be X-rayed and directing the snout against the area to be photographed. It works on metals from magnesium to steel.

Sources of available products described in this issue are indexed on pages 12, 14 and 16. Sources of further information on other articles are listed in the WHERE-TO-FIND-IT LIST, which is available to readers without charge from the Bureau of Information, Popular Mechanics Magazine, 200 E. Ontario, Chicago 11

## **Motor-Assisted Bicycle Mounts Engine Over Front Wheel**



Powered by a tiny motor mounted above the front wheel, a bicycle of European design rolls along at speeds up to 18 miles per hour. The motor has only three moving parts: Piston, connecting rod, and a crankshaft mounted on ball bearings. There is no clutch or transmission and no need for lubrication. A silicon-carbide abrasive roller in contact with the front tire propels the cycle; speed is controlled by a thumb throttle on the handle bar. Disengagement of the motor is quickly and easily accomplished.

Fourteen stories high, a porcelain-enamedled-steel church steeple in Birmingham, Ala., is said to be the first of its kind.

## **Hand-Grenade Fuses Inspected Automatically by X-Ray Machine**

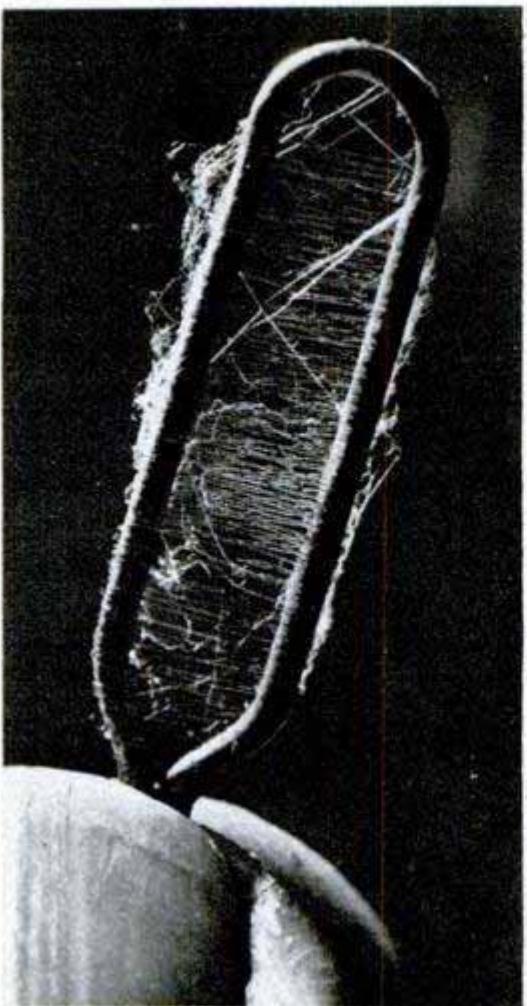
Soldiers' lives will be saved by an automatic fuse-inspection machine for hand grenades that eliminates human error by using sensitive cadmium sulfide crystals as

X-ray detectors. Rays from a 100,000-volt X-ray unit are directed through the fuses as they pass between the X-ray tube and the crystal detector. If the slow-burning powder is not packed in the fuse to the correct height, too many rays pass through the fuse and excite the valvelike crystal. It passes current to a mechanism which throws out the defective fuse. An insufficient amount of the time-delaying powder causes premature explosion, possibly in the soldier's hand.

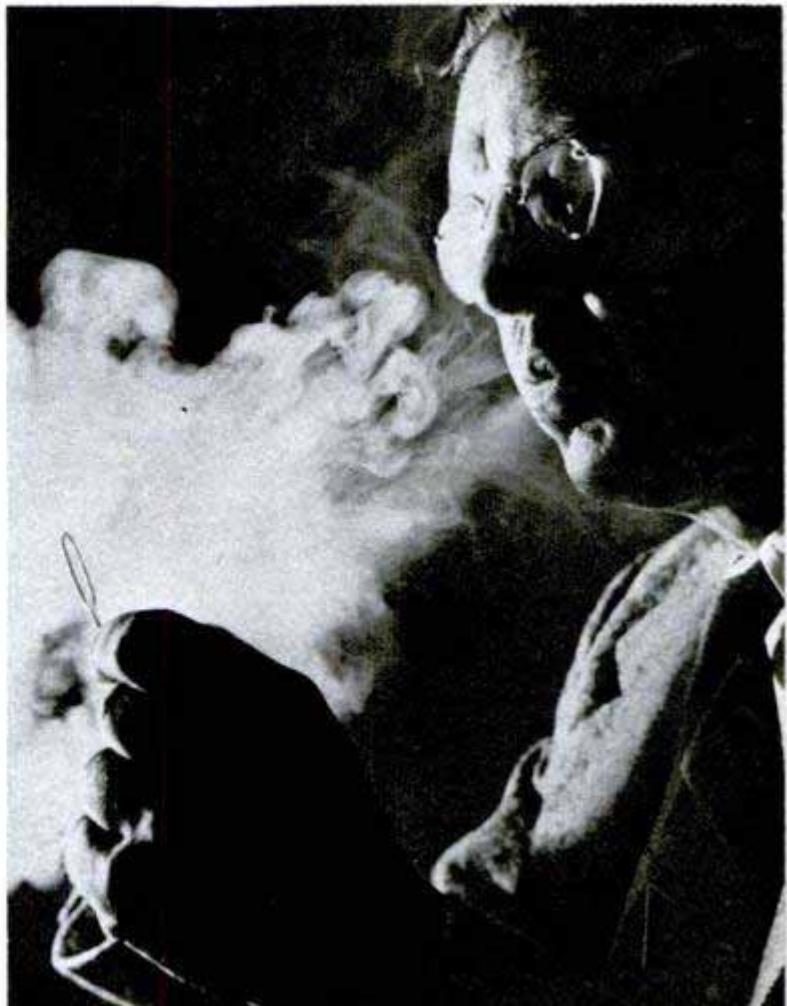


## **Traffic "Diary" For Automobiles**

Recording all stops, starts and speeds of an automobile as it moves through traffic, an electrical device is being used to analyze traffic flow. Developed at the University of California, the device also has push buttons which are operated to register the cause and location of delaying factors, such as intersections, pedestrians, signals and double parking. These factors are registered in code on a chart. The whole unit is operated by current from a generator driven by the speedometer cable.



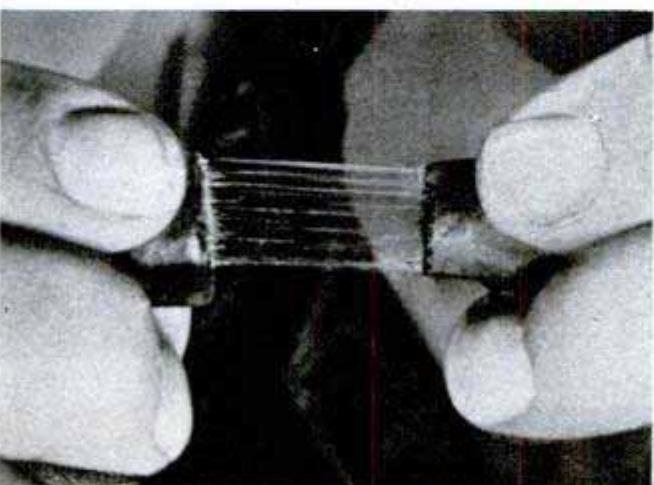
Resin fibers are finer than spiderwebs, can trap even the microscopic particles of cigarette smoke



## Scientists Snag Smog With "Spiderweb" Filters

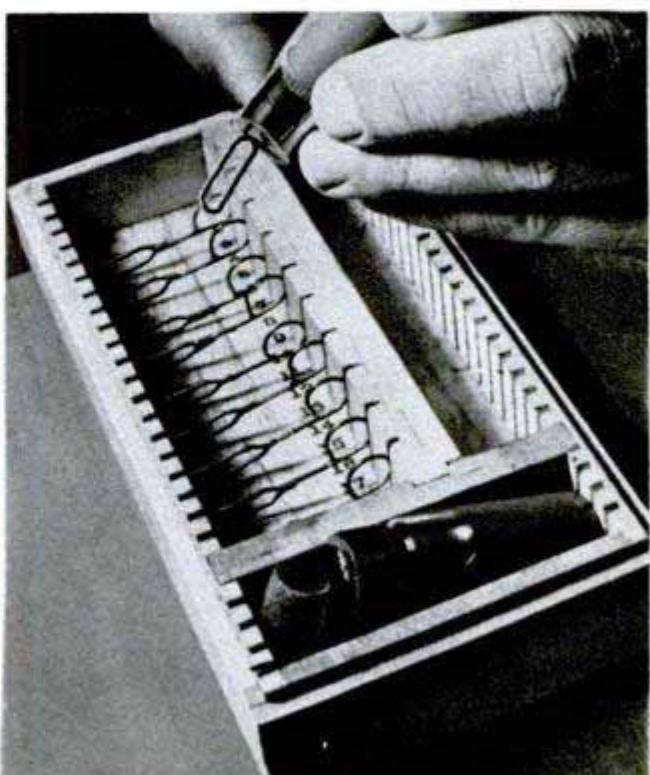
Smog, the hazy screen that obscures large cities from coast to coast, consists of billions of microscopic particles which must be collected and analyzed if scientists are to discover their sources. Collection is difficult because the finest particles tend to drift through instead of clinging to a conventional filter. Paul Magill, director of the Air Research Laboratory of the Stanford Research Institute, solved the collection problem with a filter fiber finer than spiderweb. A tiny drop of resin is smeared between two rubber stoppers, allowed to dry for half a minute,

Thin film of resin is pulled apart to make filter



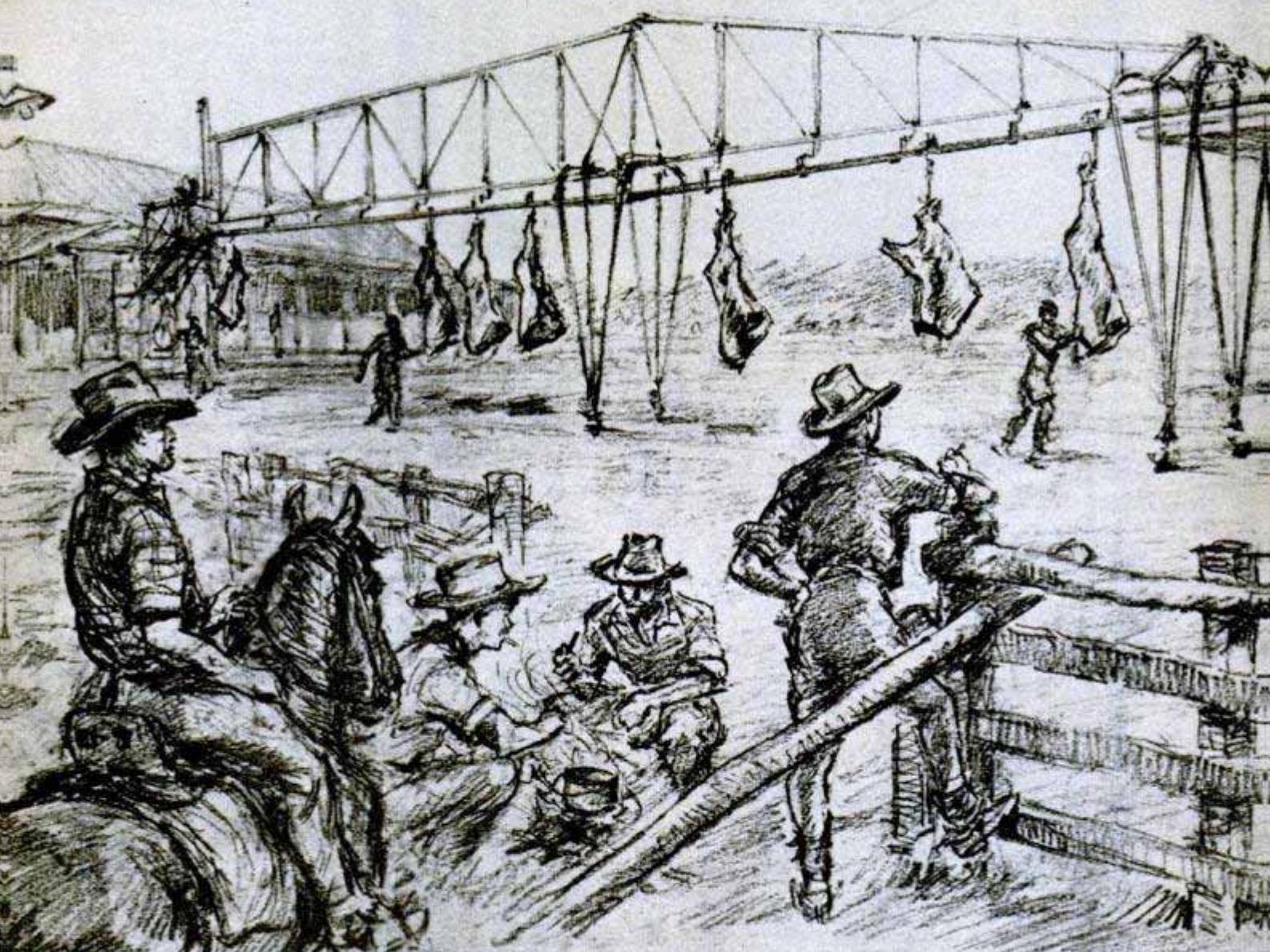
and pulled apart. The resulting web, stretched across a wire frame, can catch smog particles  $\frac{1}{25,000}$  inch in diameter.

Field collection kits contain numbered filters for researchers who sample the pollution of city air



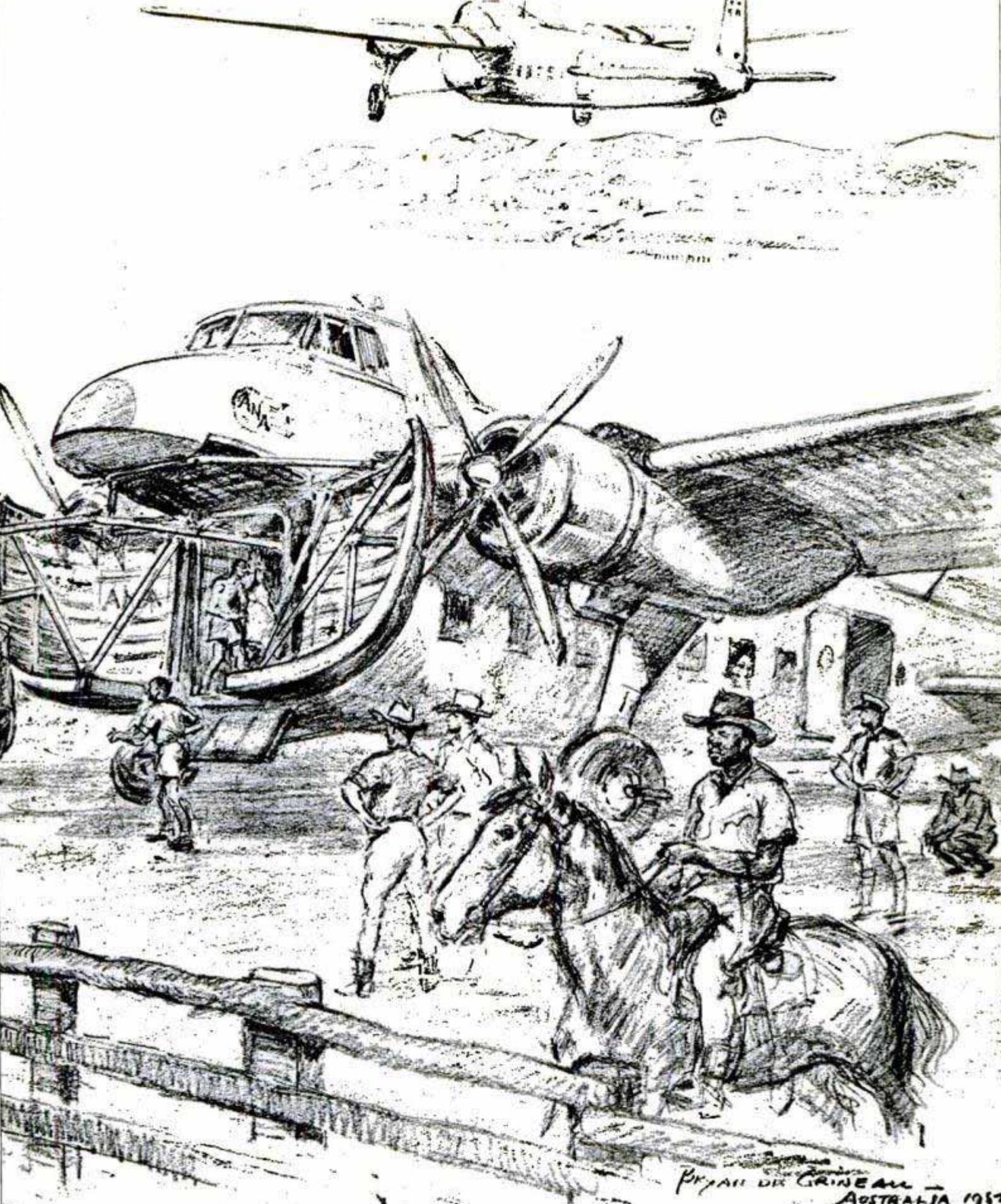


## BEEF ON THE WING



**BEEF IS TAKING WING** to revolutionize Australian meat production. With no railways and only a few inadequate roads, the country's northern ranges have long been stymied in their growth as a cattle-producing area. Only old cattle could withstand the rigors of the long, overland trek

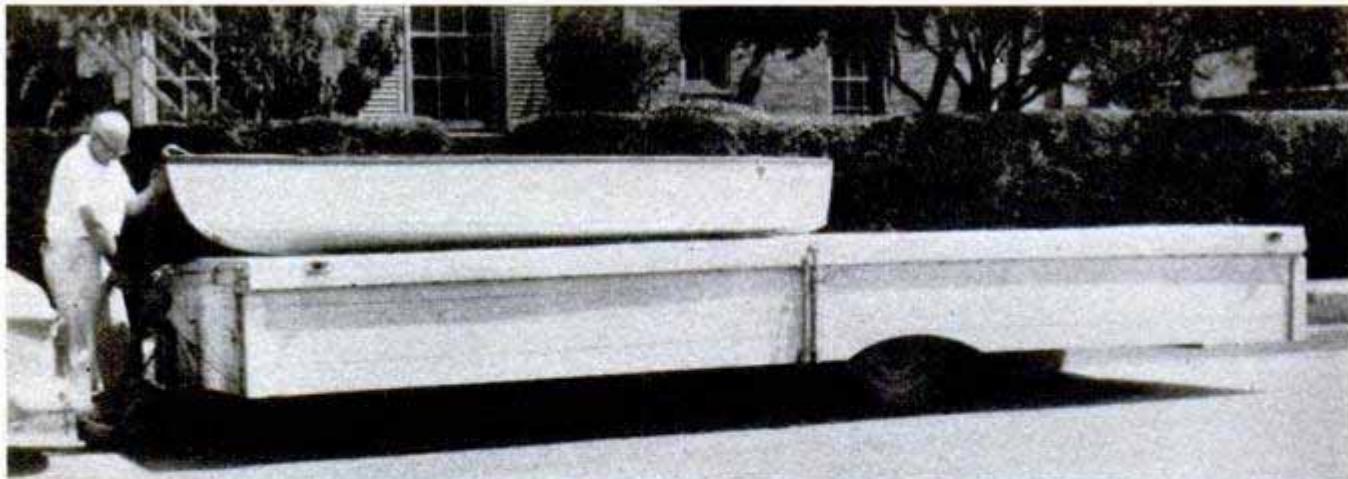
to coastal abattoirs, and even they lost weight. Moving the animals 300 miles took approximately 30 days. Now a private air-freight company, Air Beef, Ltd., is licking the problem. They first built an abattoir and refrigeration plant at Glenroy, in the center of the Kimberly region. From May to Au-



BRYAN DE GRINEAU  
AUSTRALIA 1951

gust, the killing season, cattle are now driven short distances to Glenroy, slaughtered and immediately refrigerated. The frozen carcasses are then moved on an overhead trolley from the abattoir directly into a freight plane that flies twice daily to the near-by port of Wyndham. There the beef

is loaded into ships in prime condition, directly from the pasture. On return trips the freighter flies in stores needed around Glenroy. Pig farming and sorghum growing are being developed in the vicinity of the abattoir so that its waste products can be used locally to good advantage. ★★★

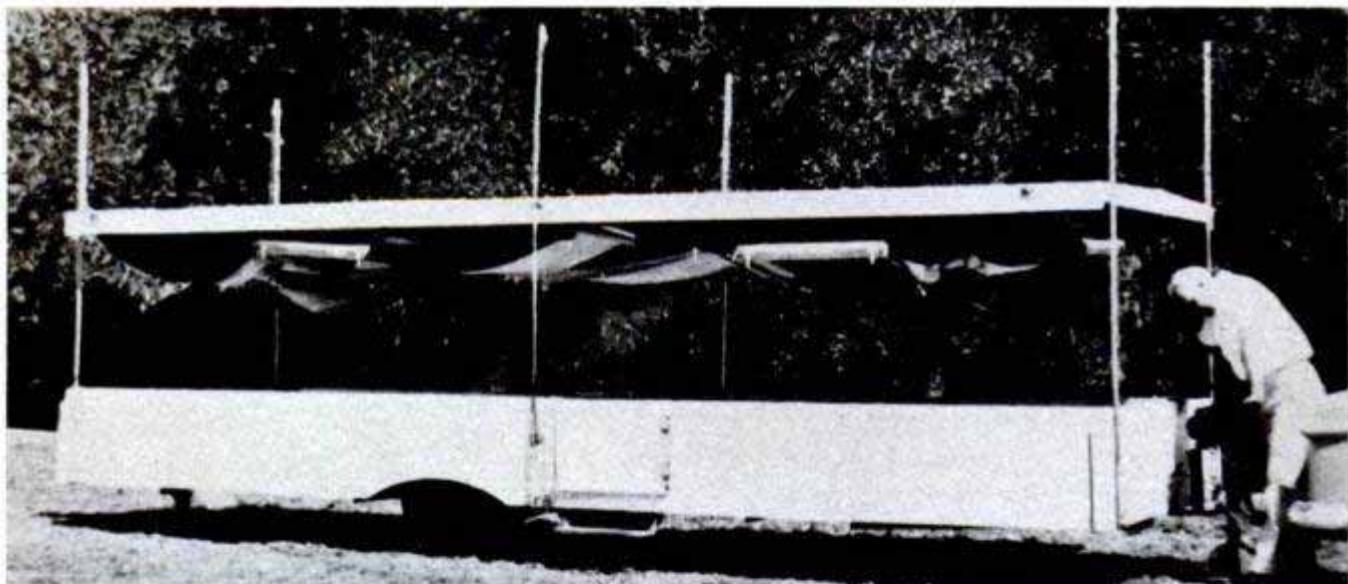


Long, low, two-wheel "tent trailer" easily follows car at speeds of 50 to 60 m.p.h. with boat lashed to top

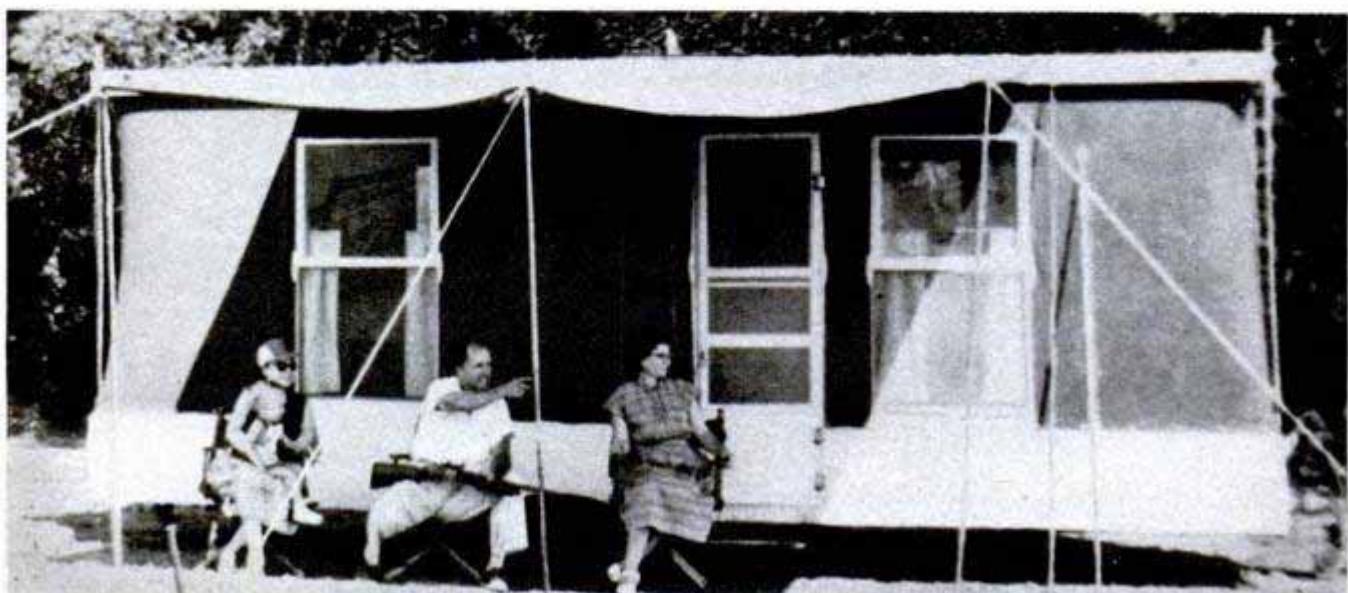
## Lightweight Trailer Collapses for Travel

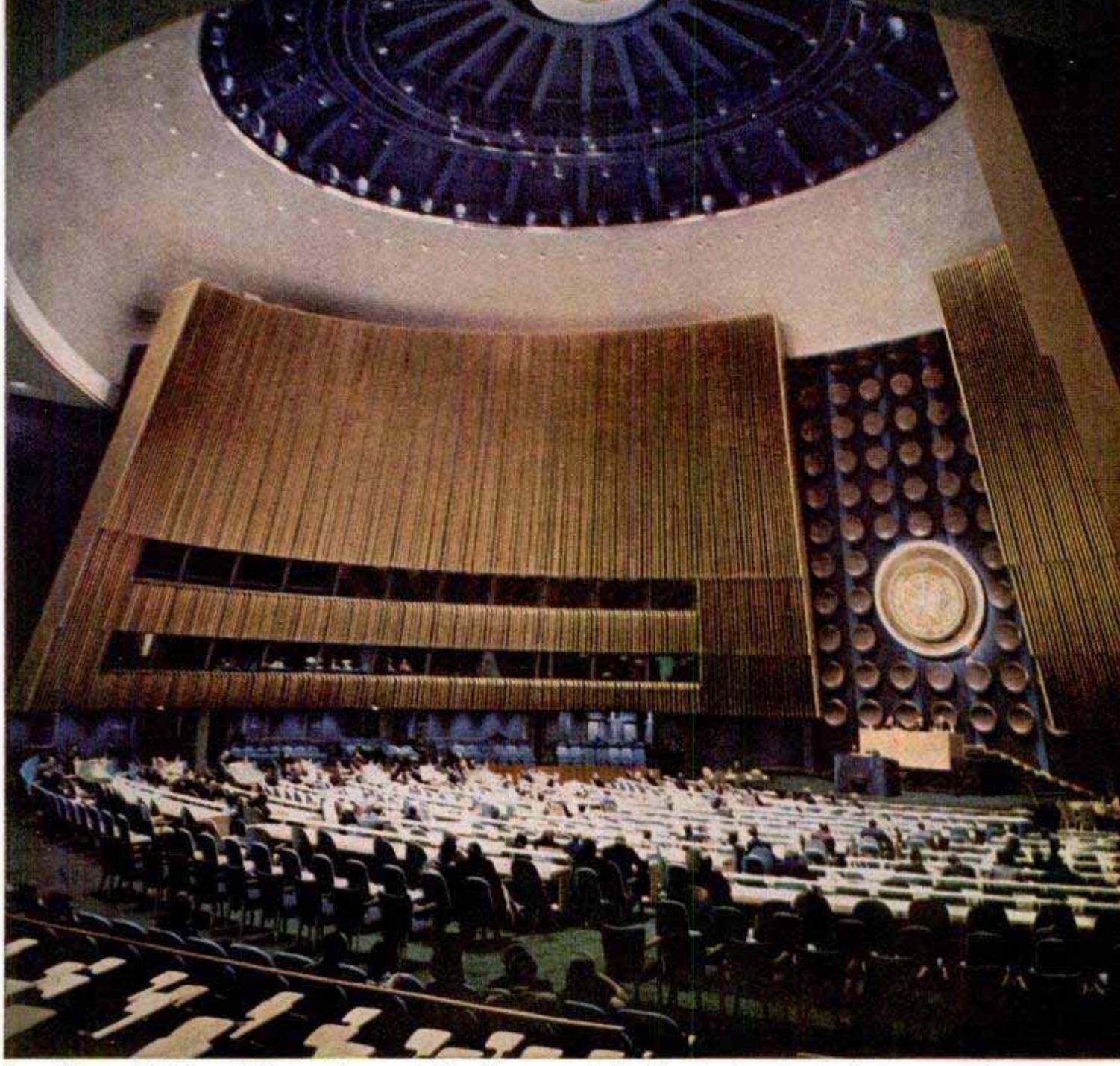
When Cecil Beck of San Antonio, Tex., sets out on a hunting or fishing trip, he is accompanied by a long, low trailer that follows easily over the roughest roads but expands into a full-size living unit once the campsite is reached. The roof is raised from

the floor to standing height by means of a winch. Canvas walls fitted with plastic windows and a hinged door swing down from the roof and are anchored. Folding furniture, supplies, a gasoline stove and an icebox are in a lower storage compartment.



Wooden standards are erected on sides and corners of platform. Masonite roof is raised from floor by winch. Within 30 minutes, Beck's "home away from home" is ready for occupancy. Interior measures 7 by 20 feet



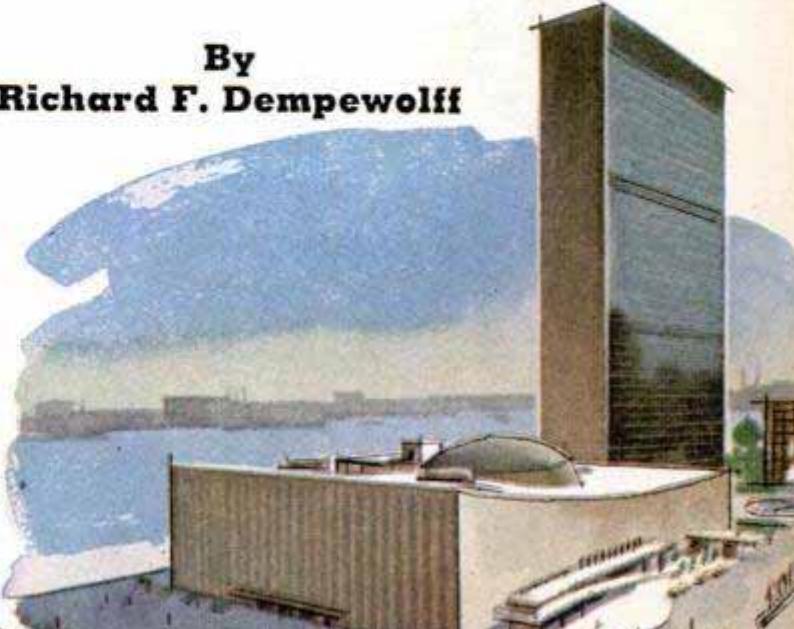


Assembly meets in its sparkling new home. Gold walls are wood slats that deaden sound to improve acoustics

## **UN's *World Capitol***

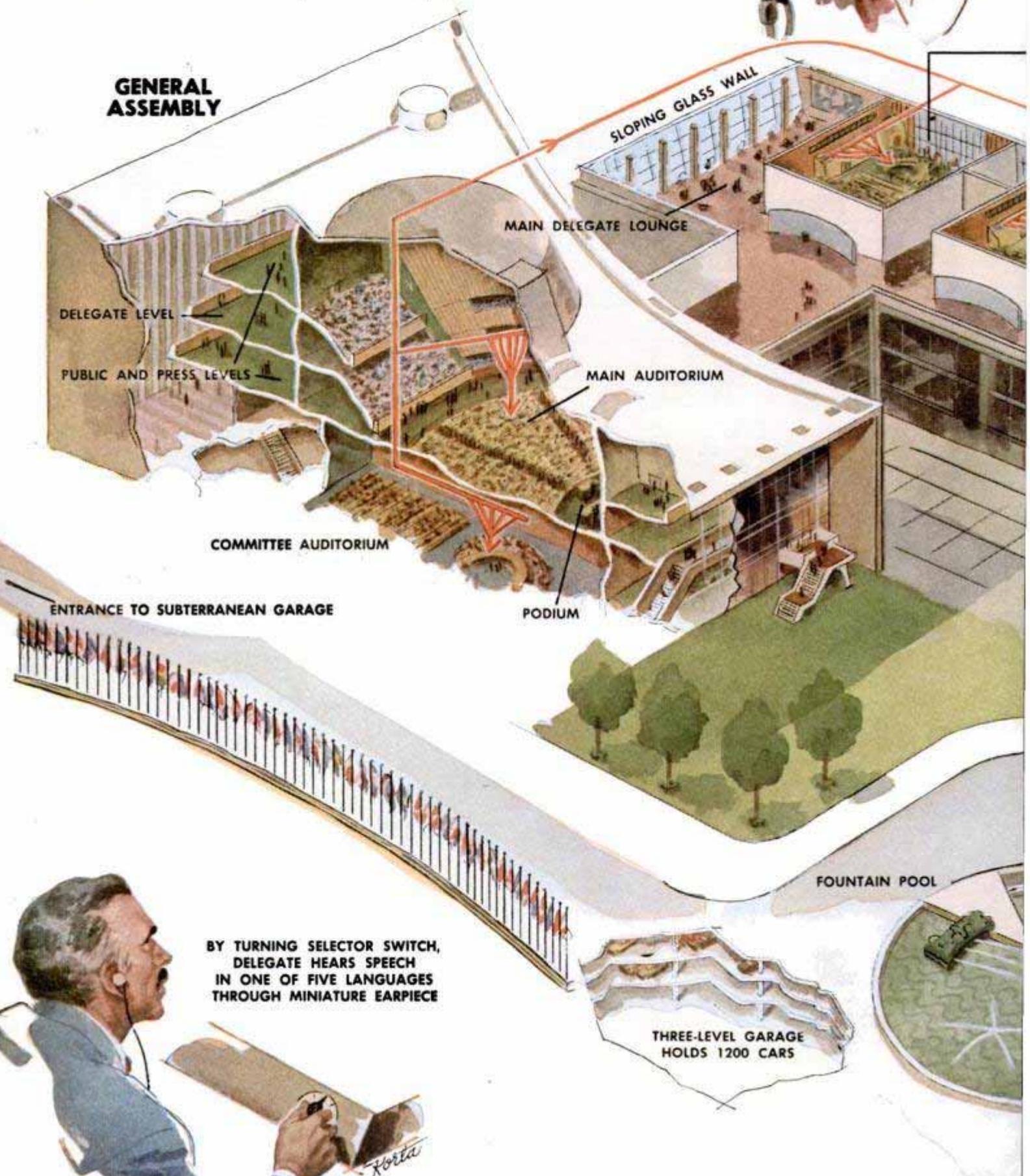
SOMBER LIGHTING in the United Nations' vast new auditorium slowly came alive over its first General Assembly meeting one day last October. A hush fell on the 2054 people wrapped in the dramatic inner shell of its 75-foot dome. Overhead spotlights set in the huge dome burned like planets against a night sky. Cold cathode tubes under wooden troughs on the rows of desks for the delegates blazed up in a sea of light below spectators, correspondents and observers, illuminating the rich blue, green and gold of the hall. Towering inward over the crowd were two startling inner walls of fluted, gold-leaved wood resembling the pipes of a gigantic organ. Two

By  
**Richard F. Dempewolff**

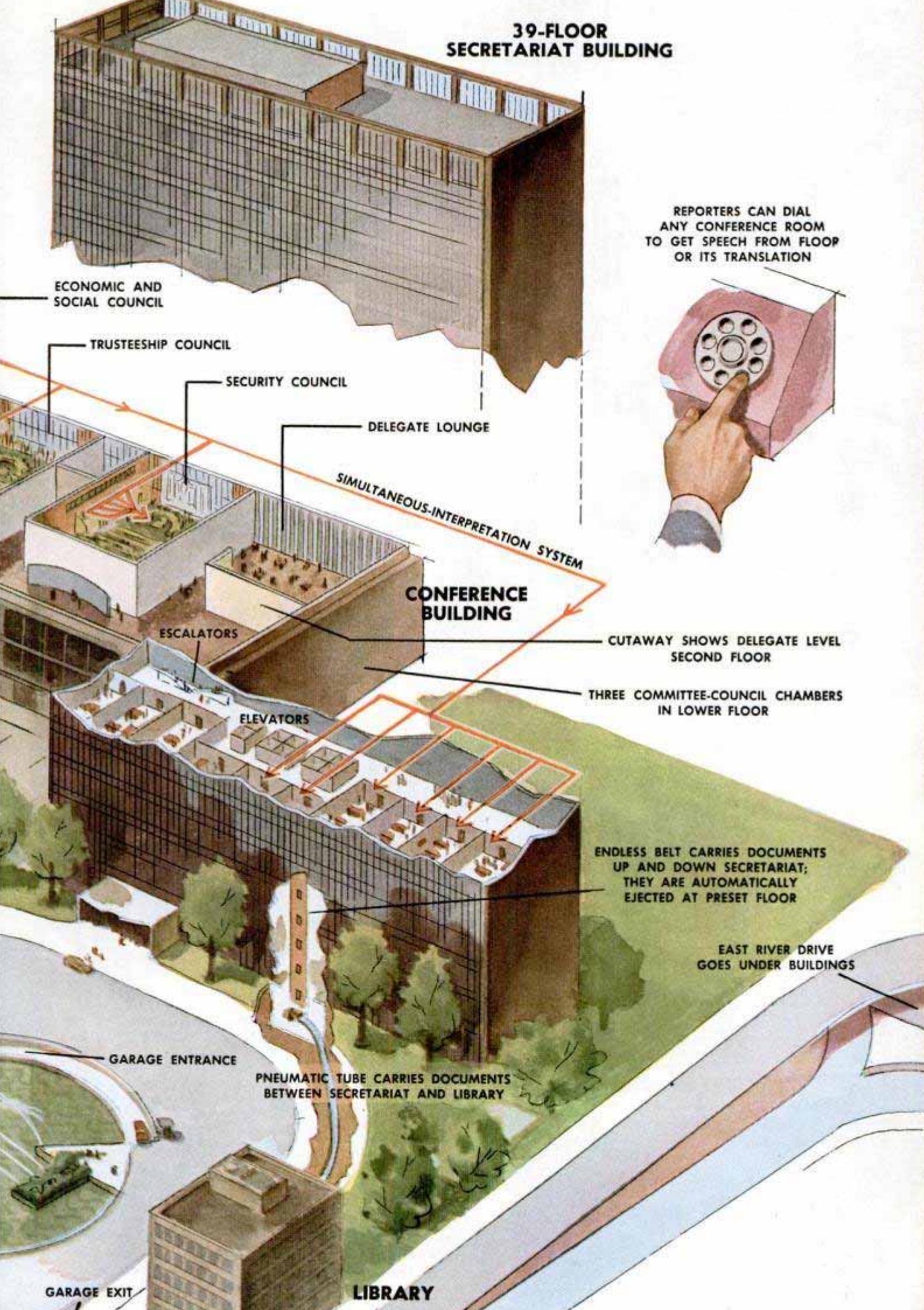


Headquarters for the world consists of three main buildings plus a library. Built on an 18-acre site along New York's East River, the "city within a city" cost \$67,500,000. An international team of architects and engineers designed the buildings. One of the many unique features is the electronic system, shown in red below, which permits any speech or debate to be broadcast in five languages simultaneously, and received almost anywhere in the three big buildings. Reporters can dial any of the conference rooms and receive speech then in progress

FIVE INTERPRETERS BROADCAST TRANSLATIONS OF SPEECH



# 39-FLOOR SECRETARIAT BUILDING





Cantilevered balconies jut out over lobby, which is 75 feet high. Beams and girders become part of decor

rows of glass in booths in each fluted wall—for interpreters, radio and TV men and electronic-control men—caught brilliant reflections from the floor. They pointed to a massive panel behind the speaker's platform, where 60 concave gold shields—each three feet in diameter—will soon be emblazoned with the seal of each member nation.

Former Secretary of State Dean Acheson stepped up to the marble-fronted podium to give one of the first speeches. By touching a switch he could raise or lower the lectern to the height most suitable for him. Also on the lectern was a unique clock for long-winded speakers. Only 45 minutes showed on its face. Green, amber and red lights flashed time warnings at him.



Speaker in General Assembly can raise or lower lectern by pressing a button. Speech in his language goes . . .

. . . to glass booth where an interpreter receives it via a headset. She translates words instantly into one of the five official UN languages. Her words go through microphone to

. . . each delegate's desk. By turning a selector switch the delegate can choose the translation he desires. His earpiece, about the size of a hearing aid, plugs into receptacle in desk

After six years of restless wandering, the UN General Assembly was finally established in its permanent home—the last of three massive modern structures that cost \$67,500,000 and were hailed by former Ambassador Warren Austin as "The Capitol of Peace."

The land on which these buildings sit was known as Turtle Bay Farm when, back in 1639, a Dutch colonial governor bequeathed it to a pair of English tobacco growers as a reward for fighting Indians. Today, the 18-acre site between 42nd and 48th streets along New York's East River is a controversial pile of plate glass, marble and towering steel.

Frank Lloyd Wright calls it "a perfect symbol of division." Architect Paul Rudolph blasts its interiors as "a background for a grade B movie about one world!" To all comers, Wallace K. Harrison, who headed the international staff of 70 architects and engineers that designed the small city, rejoins: "We were not trying to build a monument, but the best workshop for peace in the world."

For nearly a year, swinging steel demolition balls sent old tenements and warehouses cascading on the site. Mammoth shovels, gouging two tons of rock at a bite, dug 40 feet into Manhattan's quartz-mica underpinning while lumbering trucks carried away 213,000 tons of rock and soil to make room for deep subterranean founda-

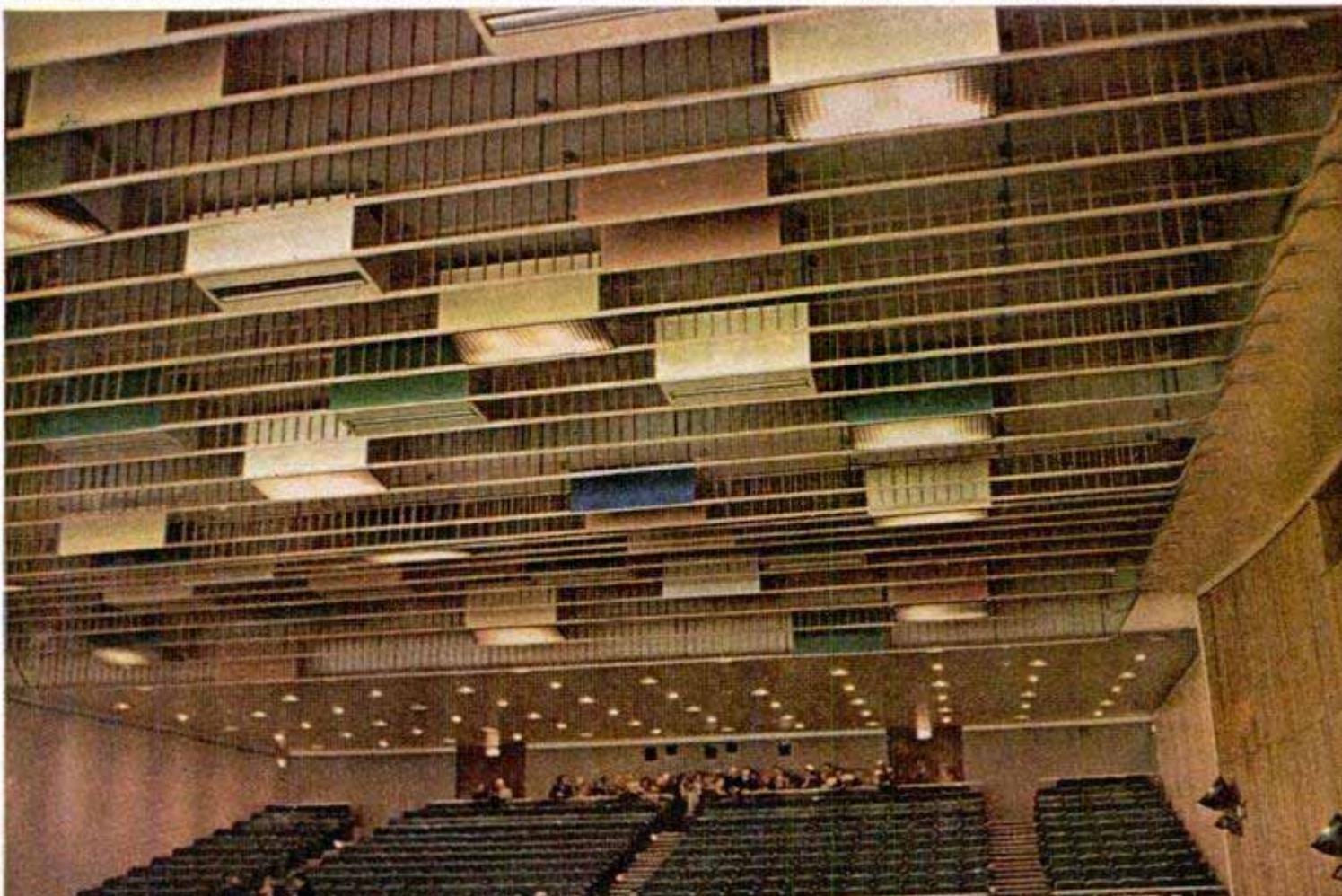
tions. One by one the unique buildings rose out of the great hole—sweeping dramatically along the river shore and overhanging Franklin D. Roosevelt Drive on large cantilevered beams. Cars disappear under the shelf of buildings at one end of the site and emerge at the other like ants creeping under a doorsill.

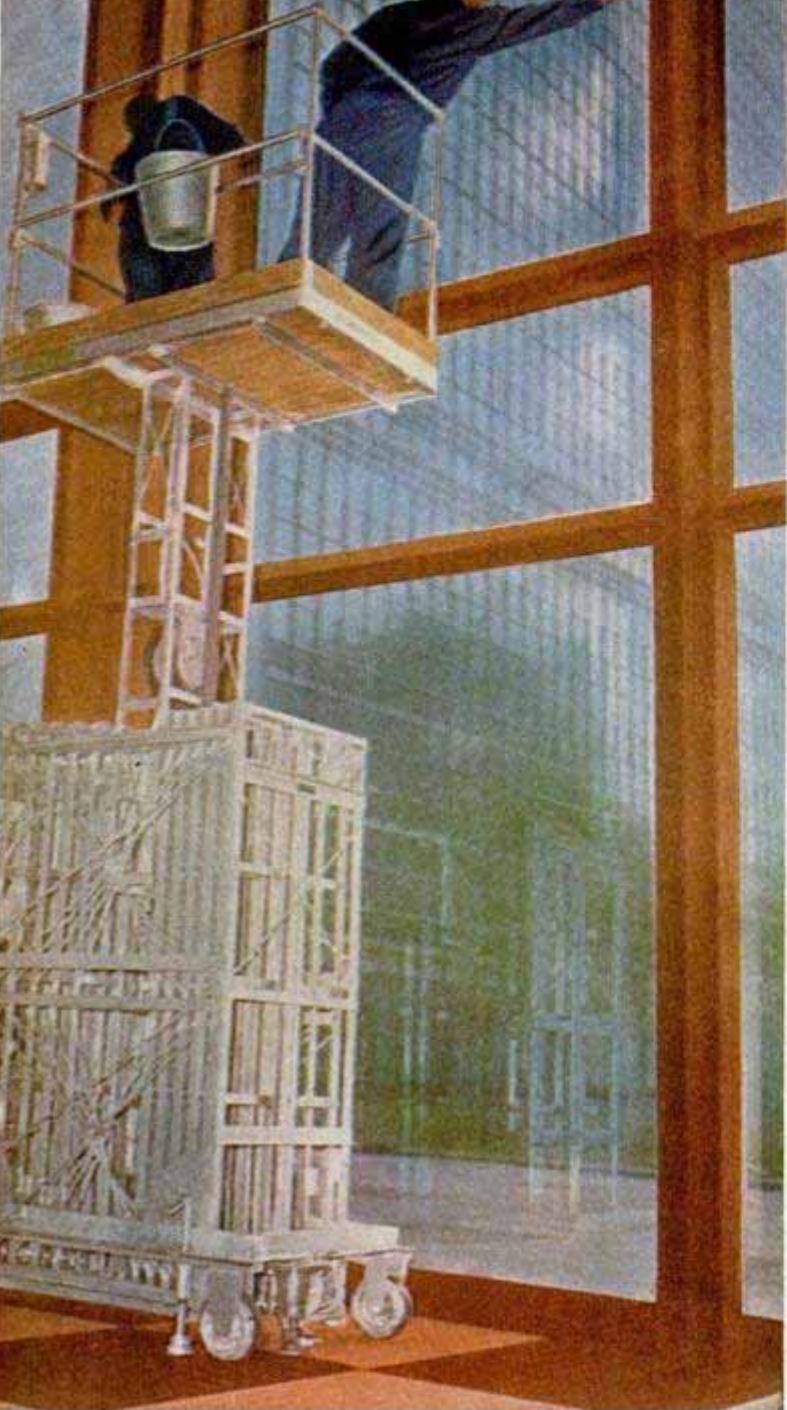
The 39-floor Secretariat, 72 feet wide, 287 feet long and 544 feet tall—a thin skyscraper resembling a book—dominates the scene. Here executive and administrative offices accommodating 3600 headquarters personnel are located. Its wide facades are sheer glass from top to bottom, made up of tinted windows to reduce glare, with black-glass spandrels between floors. The narrow sides are startling windowless walls of Vermont marble.

Connected to this building and running along the river edge like a hyphen between the Secretariat and the Assembly Hall is the five-story Conference Hall, a long (400 feet), low structure encircled by cantilevered balconies.

In its upper floors are three massive, lavish chambers stretching out 135 feet in length and half as wide. Here, under 25-foot ceilings, decorated with odd-shaped lighting and air-duct panels, the Security, Trusteeship and the Economic and Social councils hold forth around big horseshoe tables in front of the glass walls overlooking the river. Beneath these halls are three

Chamber of Trusteeship Council has exposed air vents in ceiling, splashed with color as part of decoration





Fourteen washers work endlessly to clean vast areas of glass. Telescoping platforms help them reach high points inside buildings. Below, dial right number in pressroom and get any speech in desired language



more committee rooms of equal proportion and three sub-basements.

Since the Secretariat is so tall and thin, its east and west faces catch plenty of wind and it sways a little. To keep this motion from cracking the walls of the conference hall where it joins the skyscraper's base, engineers employed a clever device. Conference Hall girders, instead of being rigidly secured to the Secretariat frame, rest on rockers under which are four layers of roller bearings. The skyscraper can teeter to all four points of the compass and those connecting girders merely ride in and out on their mounts leaving the Conference Hall still.

Joining the Conference Hall by a connecting corridor of plate glass is the most unique of all the buildings—the General Assembly. If you stretched a canvas tarpaulin from four corner poles, you'd get the general shape of the roof of this building. Just as the sides of the tarp would sag in the middle and curve in along the sides, so goes the roof of the big hall, pulling the English limestone sidewalls in with it. The flat south end, facing the Secretariat Plaza, is one vast recessed picture window set in a marble shadow frame. Behind it is the monumental lobby for delegates.

A visitor entering via the flat north end comes through doors in a wall of photosensitive glass set between marble columns. The glass has been exposed to simulate translucent marble. The visitor finds himself in a lobby 75 feet high and facing three cantilevered balconies. A hairpin-curved step-ramp sweeps up to the first balcony, leading on to elevators and public galleries of the auditorium.

All the interconnected buildings are so arranged that the press and public move through the first and third levels, bypassing the second. The second level, leading to the floors of all conference chambers is for exclusive use of delegates, who move directly to it via escalators in their special lobbies.

Unique architecture is only half the story of this fantastic "city within a city." You can see Architect Harrison's "workshop" function by following any UN employee through a typical day. George Sherry, for instance, is one of the interpreters—the one, incidentally, who most often translates Mr. Vishinsky's bombastic talks.

Sherry's boss, chief interpreter Nicholas Orloff, may assign him to cover a conference at, say, 10 a.m. At nine Sherry drives into the Secretariat Plaza, swings around the huge fountain and steers his car down a ramp that circles the fountain bowl, disappears beneath it and comes out in a tremendous three-level subterranean garage. He walks underground to the Secretariat and up a flight of stairs to the lobby. If he



Window-wall and big disklike holes in ceiling flood the Economic and Social Council chamber with light

wants a cup of coffee he'll take the glass-encased stainless-steel escalators serving the four lower floors up to the cafeteria. If he's going higher he'll head for the banks of elevators serving the various tiers of floors. There are no buttons to push. He touches his finger to an "up" or "down" spot painted on a plastic arrow. Static electricity in his body energizes electronic tubes which activate the switches and relays controlling the cars. He never waits long even in rush hours. The control system, set for any time interval by the starter to conform with traffic flow, regulates stopping time on each floor and keeps cars moving. If Sherry is passed up by a couple of loaded cars, a "forgotten man" relay automatically goes into action after about 60 seconds and the next car coming by in the opposite direction will make a special stop and take him where he wants to go.

Sherry's office is just a cubbyhole off the interpreter's lounge on the 17th floor. But it may change overnight. Every office in the building is made of floor-to-ceiling steel partitions that fasten to outer-wall brackets. A few hours' work can switch a whole floor plan from cubicles and corridors to one vast space. All utility conduits are easily accessible beneath removable floor panels, and even built-in ceiling lights can be moved a foot in any direction and plugged in again.

Suppose it's chilly or too warm. Any of Sherry's co-workers with outer offices can dial a 12-degree temperature change in the revolutionary heating and air-conditioning system, adjustable at more than 4000 individual stations. Fresh air, gathered in massive equipment occupying the entire 6th, 16th and 28th floors, is blown through the building, passing over local coils before emerging in any office. In cold weather the coils contain hot water. In summer they contain cold water.

Interpreting instantaneously, while someone is actually talking, requires unique talents. Sherry must translate one sentence while listening to the next. "When we started," he says, "everyone said it was impossible. Actually we don't translate — we paraphrase, summarize and transpose thoughts and ideas from one language to another. To do it we must be experts in the field that is being covered by the speaker or we'd be lost."

That's why Sherry is getting his doctor's degree in international politics. And it's why, before his 10 o'clock conference date, he'll want to bone up on Vishinsky's subject material for the day. A call to the library building starts things rolling. The books he asks for are loaded in a metal container which is stuffed into a whopping 6-by-12-inch pneumatic tube. Traveling at 30 feet per second, it zips underground to



**View up inner shell of General Assembly shows interpreter leaning out of booth under starlike spotlights**

the Secretariat basement where an attendant removes the material. If Sherry were in the General Assembly, the attendant could send the smaller papers scuttling directly over there through a smaller four-inch tube system. Since it's just going upstairs, he puts books and all into a black plastic box. This goes on an endless chain belt, moving to the top of the Secretariat and back at 100 feet a minute. On a big panel the attendant sets a control that will

**When conferences are held in halls outside UN, delegates use tiny radio receivers to hear translations**



automatically kick the box off at the 17th floor, where Sherry or a messenger will be waiting to pick it up. Within minutes of the time he called the library, Sherry's material is at hand.

It doesn't matter which conference chamber is scheduled for the day's work. Whether it's in the startling Economic and Security Council, where open ducts and conduits are worked into the modern ceiling design, or the vast General Assembly hall, the interpreter will go to a soundproof booth behind the double rows of windows that slice the walls of each auditorium. Five of these booths are set aside for interpreters who will convert the floor discussions into the UN's five official languages (French, Spanish, Russian, English, Chinese).

Sherry, who will put Vishinsky's words into English as fast as they're spoken, seldom has any advance idea of what will be said. But he knows it will be fast, violent, and full of quotes from obscure Russian classics. There will be plenty of room for "bloopers"—like the famous incident when Gromyko's loud argument for "reduction of armaments" came out "reduction of arguments." Hence, Sherry will pick his way carefully. Once the translation has left his mouth, the damage may be done because every word he utters is processed instantly through the fantastic simultaneous-interpretation system.

Here's how it works: At the same time Sherry is translating the talk—piped right from Vishinsky's mike to the interpreter's headphones—other translators in adjoining booths are turning the speech into the other official languages. All these translations, along with the floor speech, are piped through a master console, where the sound engineer can send up to five conversations through banks of amplifiers. Out goes the speech in different languages. At any seat in the auditorium, the occupant simply turns a tiny six-position switch and taps into any one of the six channels. Thus he will hear the Vishinsky speech in any of the languages he chooses. The translator he hears will seldom be more than a few seconds behind the speaker. Visitors' chairs are equipped with standard headsets. Delegates at the conference table listen over miniature earpieces like those used in hearing aids. Their selector switches are set in sloping panels that form the table edge.

Translations from every hall where meetings are in progress also are piped over to the executive and press offices in the Secretariat. There, receiving sets on the desks look like standard public-address system "squawk" boxes—with one exception. Beside the loudspeaker there's a dial. By dialing different combinations the man at the

(Continued to page 258)

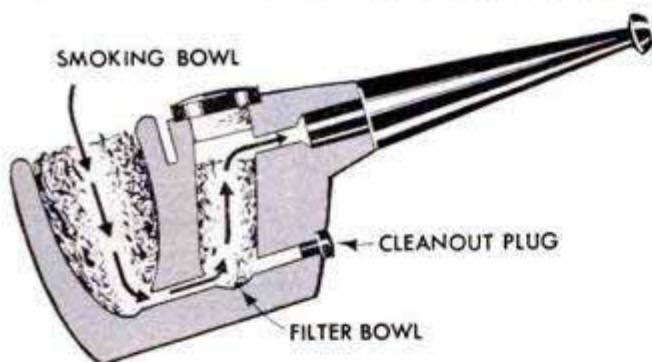


## Curved-Wing Appearance of Plane Surprises Photographers

Engineers explain the unusual curved-wing effect noted in photographs of the XB-52's first flight as due to the angle from which they were taken, atmospheric

conditions and normal wing-tip flexing upward under certain conditions. The eight-engine Boeing jet has a 185-foot wingspan and is 153 feet long.

## Pipe With Two Bowls Filters and Cools Smoke



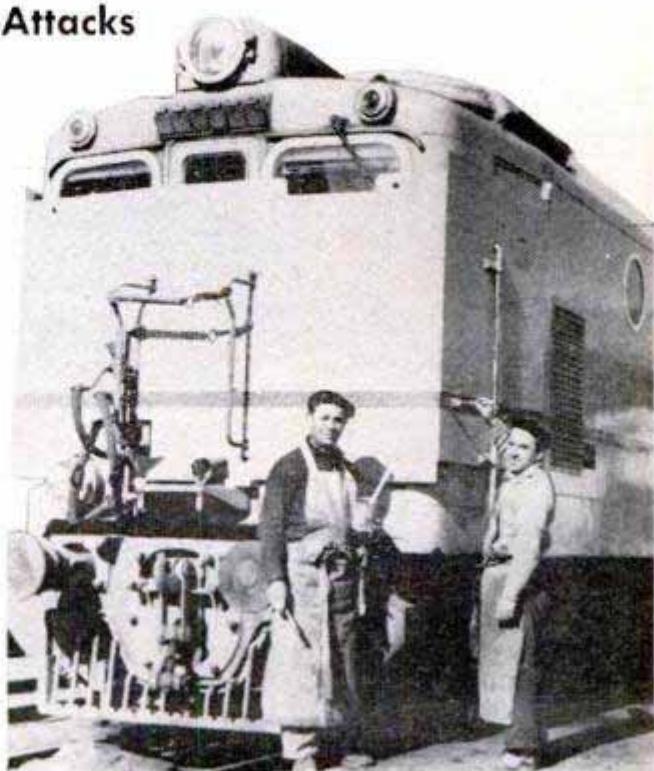
Two bowls instead of one distinguish a pipe which uses the rear bowl for a filter. Smoke from the main bowl passes into a cooling chamber and then exits up through the unlit filtering tobacco and into the stem of the pipe. Result is said to be a cooler, cleaner, drier and richer smoke. The divider between the two sections is quickly removed for easy cleaning. The smoke, it is claimed, picks up the taste of the filtering tobacco in the rear bowl.

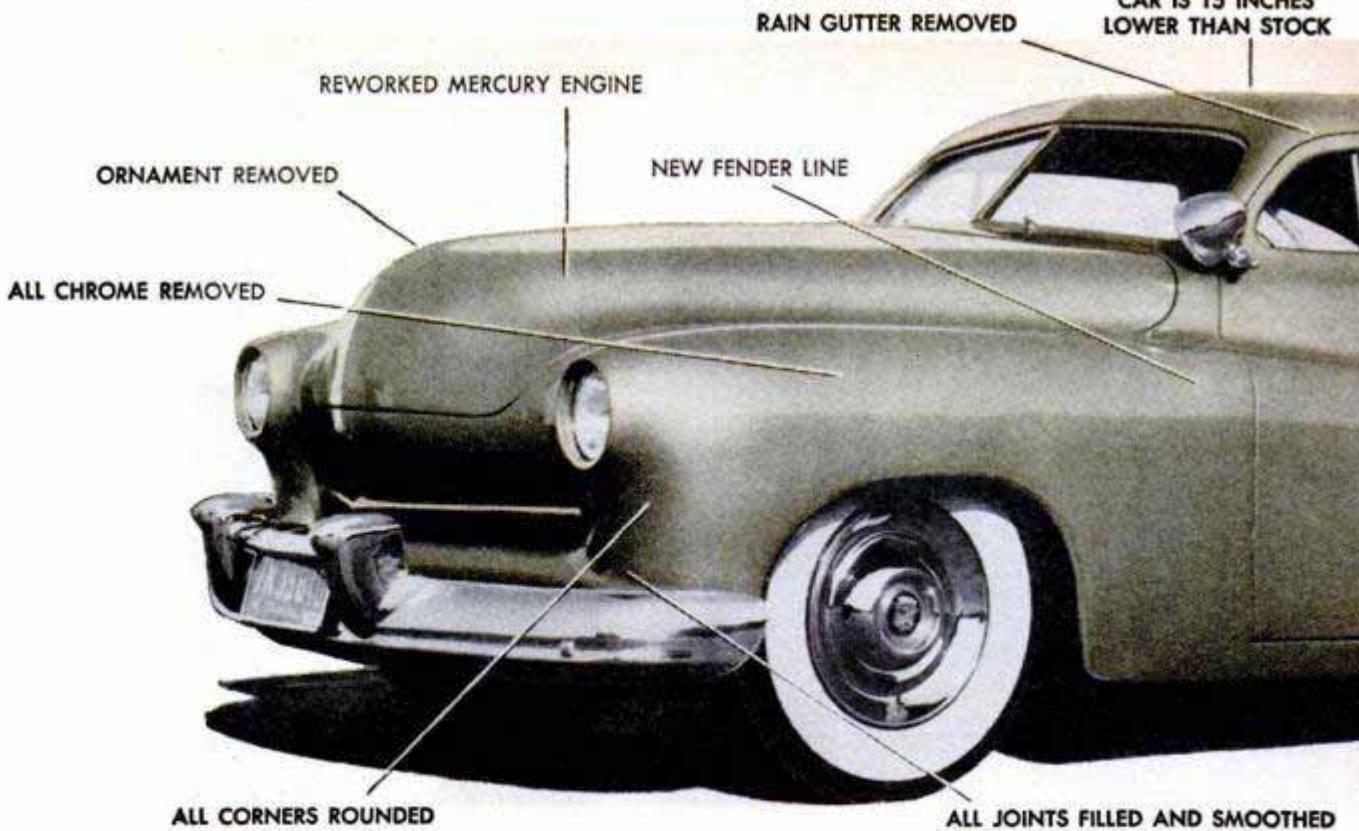
## Armor Plate Protects Rail Crews From Attacks

In the wild desert country of southern Tunisia, rebel bands have become so dangerous that the Sfaz-Gafsa Railroad Company has taken drastic means to protect its crews. All trainmen have been equipped with automatic rifles, and trains have been armor-plated. Heavy steel plating covers the locomotive cab, leaving only enough of the window exposed for safe vision.

## Bang!

With a noise like a thunderclap, Neville Duke explodes through the sound barrier. Duke, a British test pilot, is something of a hero to his countrymen, for he will crash through the barrier on request—sometimes several times a day—to produce the spectacular and still unexplained bang. His job is to check aircraft as they pass through the barrier into the little-known world of supersonics. On deck for next month is "He Goes Banging Through Sound," a tale of Duke's dangerous work





**Turn a custom-car fan loose on a factory-built automobile and you'll never recognize the original. To him, a stock car is just . . .**

## FOUR WHEELS WAITING

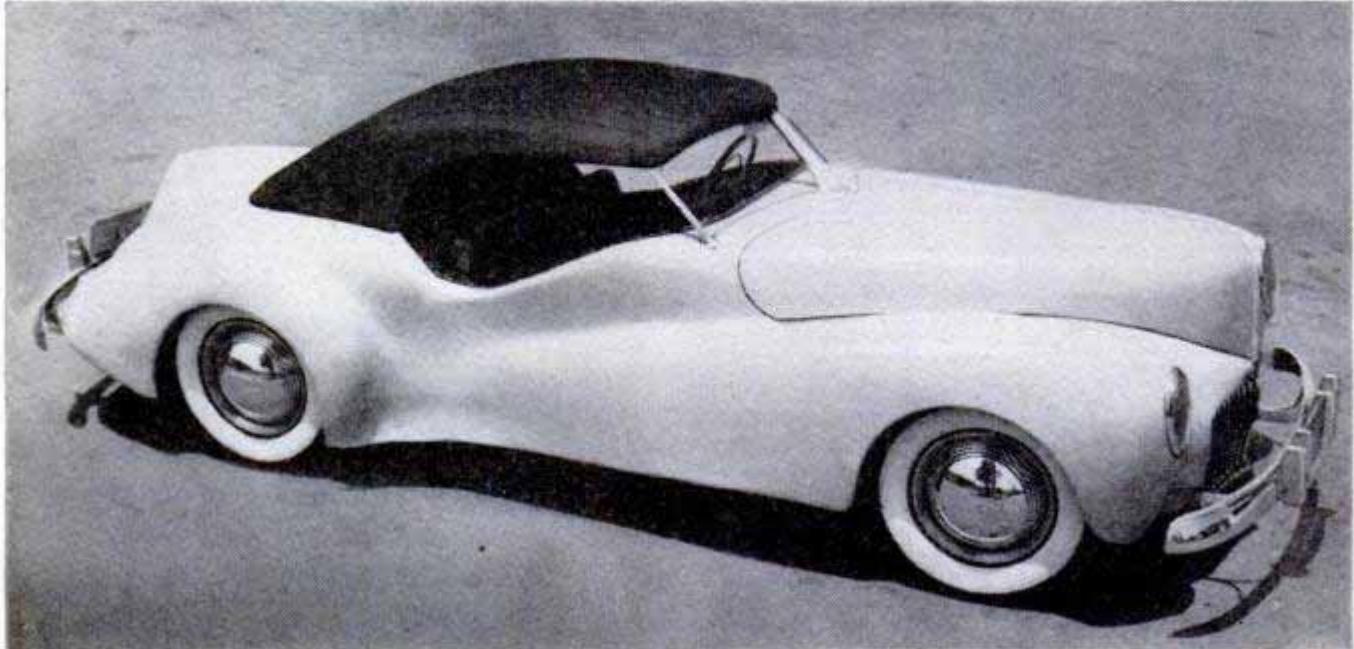
A WESTERN motor enthusiast is planning a tear-drop coupe that will be powered with a gas-turbine engine and steered with an aircraft-type control stick that also serves as the throttle and brake. Push the stick forward to accelerate, pull it back to apply the vacuum-boosted brakes. Left-or-right motions of the stick

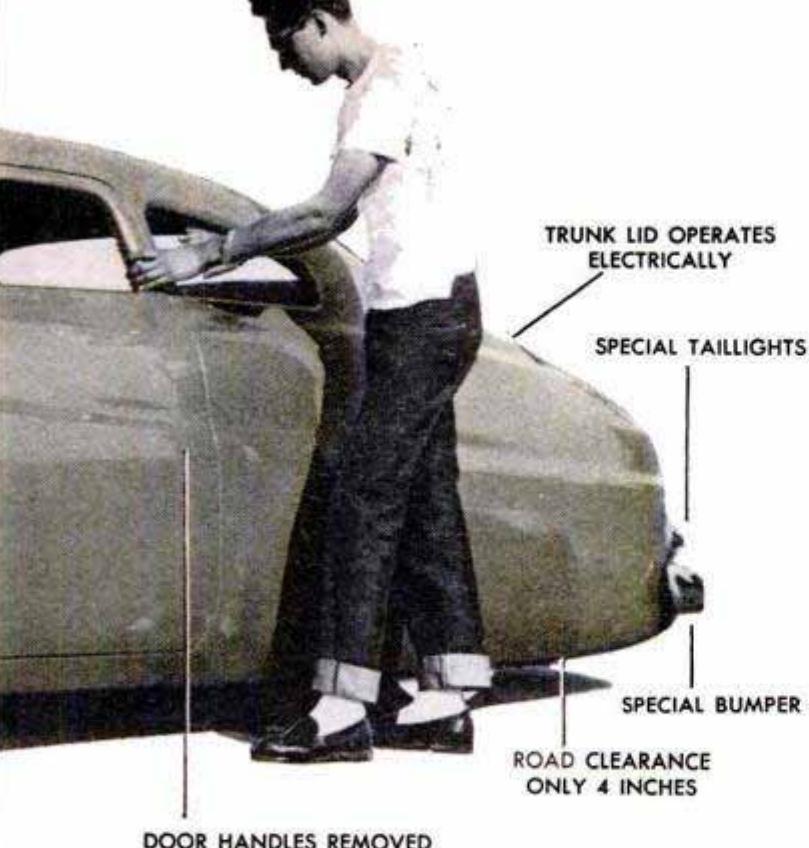
will operate the power-steering mechanism.

The car will have a transparent plastic top with polarized shade control and, quite possibly, a fluorescent-paint job that glows in the dark.

Not many people want anything that extreme and yet more and more drivers are restyling their cars to remove the original,

This sports car was built from Ford and Willys parts. Body solder was used lavishly to smooth out lines  
Road and Track photo





DOOR HANDLES REMOVED

TRUNK LID OPERATES  
ELECTRICALLY

SPECIAL TAILLIGHTS

SPECIAL BUMPER

ROAD CLEARANCE  
ONLY 4 INCHES

**By Thomas E. Stimson, Jr.**

Few would recognize car across top of these pages as a customized 1949 Mercury coupe. Detail above shows plastic tail-stop-light panel set into body

## FOR A FACE LIFTING

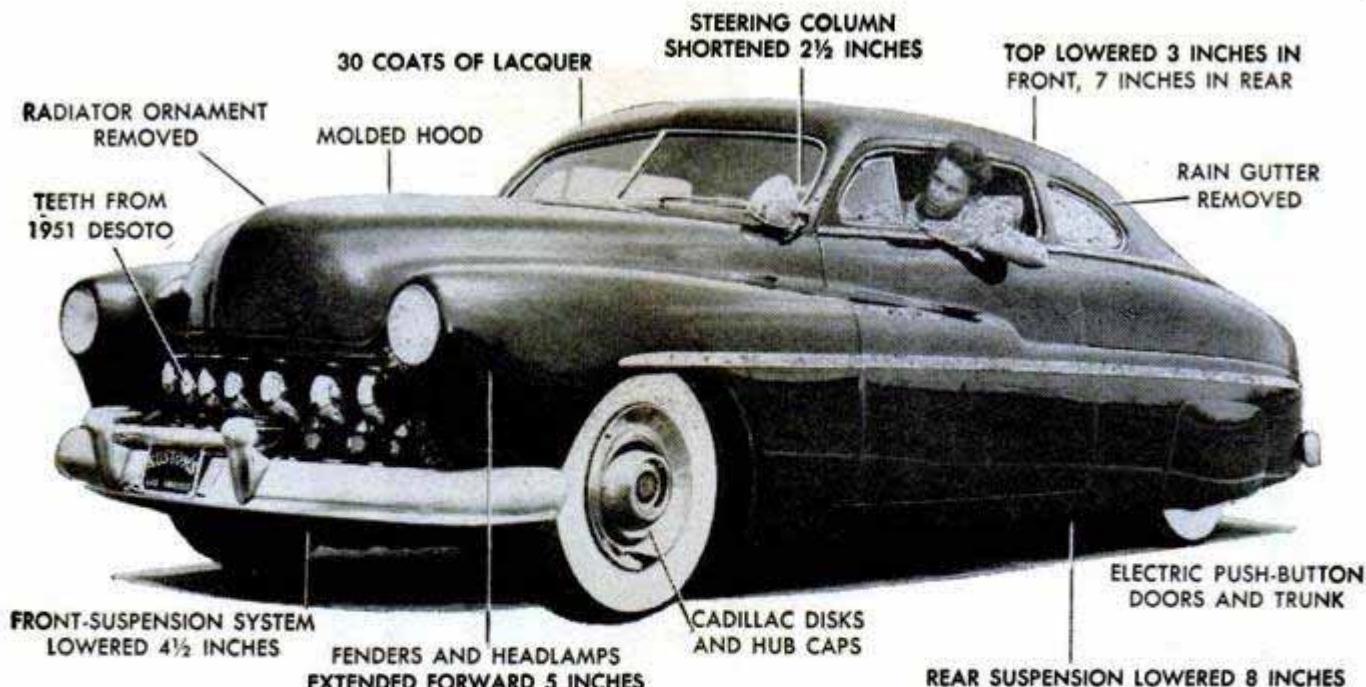
strictly "stock" appearance. In Los Angeles, for a long time an automotive style center, there are thousands of low, sleek cars on the streets that resemble no known makes. These customized cars started out as Fords, Mercurys, Chevrolets and other standard makes; now each is completely different. In most cases roadability is im-

proved, except in some instances where the owners have lowered their cars to the point where they barely clear the ground.

One owner may spend thousands of dollars in altering the looks of his car, another may farm out the basic alterations and do most of the rest of the work himself. George and Sam Barris of Lynwood, Gil Ayala of

These cars were twin '41 Fords. Owner of one at left spent \$5000 remaking car into low "drive in" type





**Wally Welch of Burbank, Calif., points out a few of the changes made in customizing his 1950 Mercury coupe**

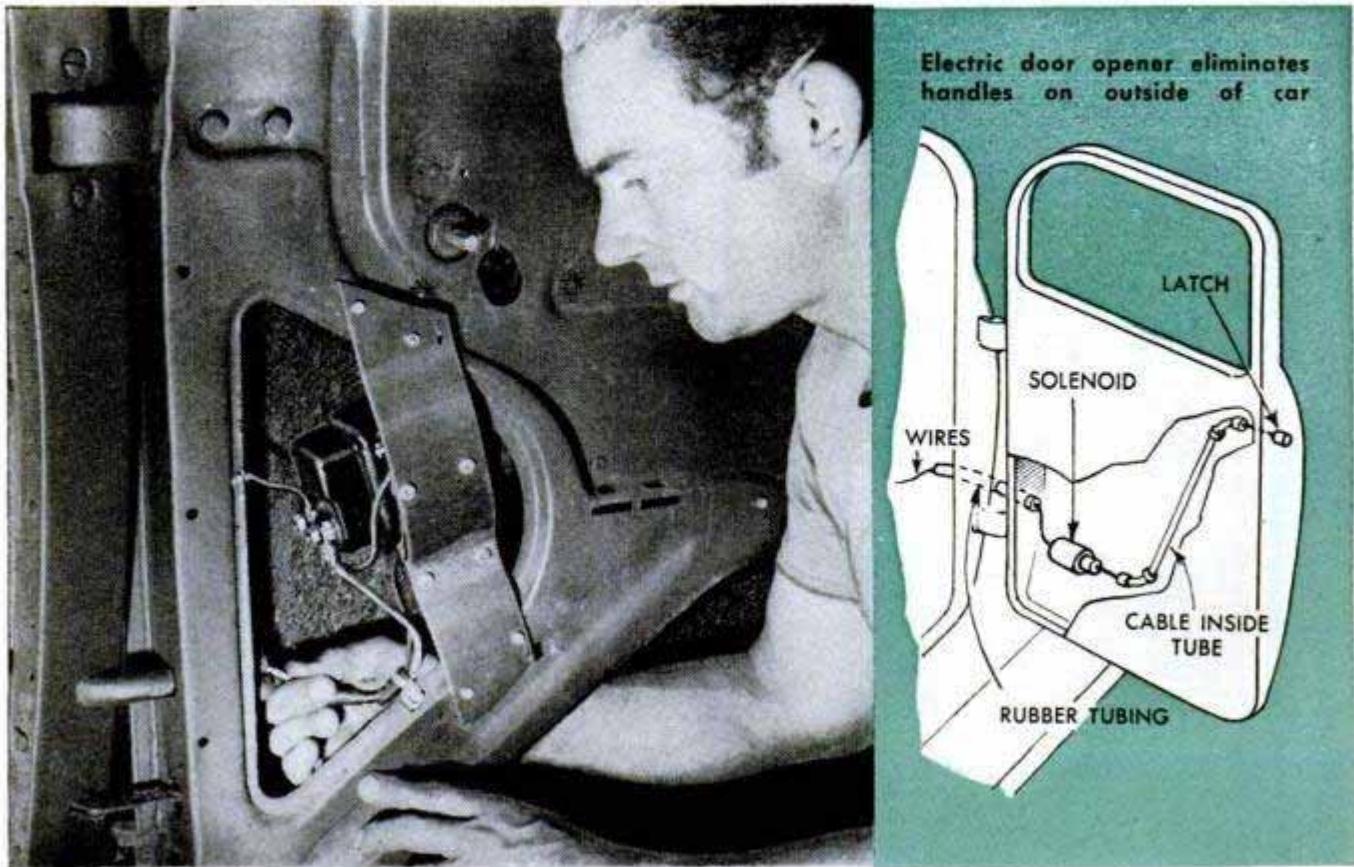
Los Angeles, the Valley Custom Shop of Burbank and a dozen others in the Los Angeles area are so busy they are scheduling work for weeks and months in advance. Cars with license plates from half a dozen different states sometimes can be found at one of the shops waiting their turn for restyling.

A number of years ago, an owner who wanted to change the looks of his car usually replaced his fenders with fenders from other makes and converted a radiator grille from another car. Often these hybrid automobiles had an attractive appearance

but the new school of custom-car owners isn't satisfied with such makeshifts.

Today a driver wants something brand new. He likes front fenders that are pulled forward so that the headlights are almost over the bumpers. He likes a shallow top above an ordinary body, or a shallow body with a top of original height, or he wants the heights of both body and top cut down. He cuts sheet metal away from the original body or adds metal to it to get the shape he wants.

A custom-car fan wants no hood ornament, a minimum of chrome outside, re-

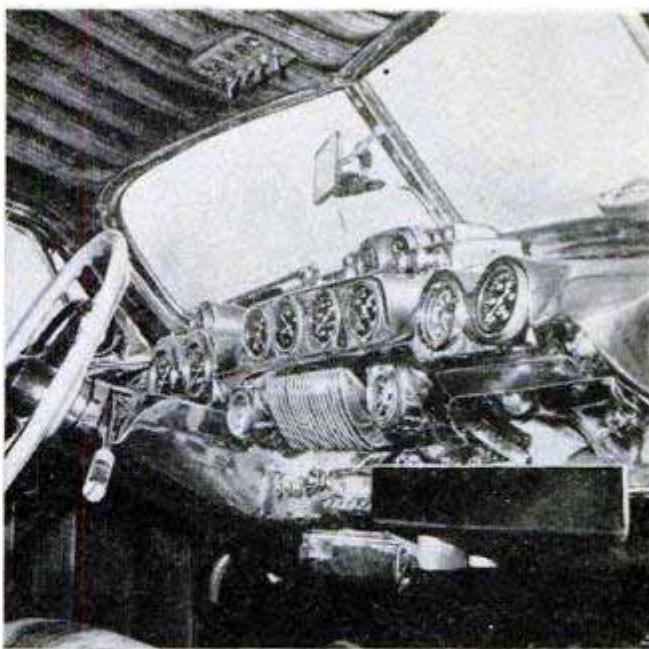




**Ignition-type lock for door with handle removed is concealed in chrome strip; it operates electrically**

styled bumpers, and something unusual for a radiator grille. Sometimes an owner has three separate grilles made up for him, each of a different design, and "wears" a new one when he tires of the old. The quick-change grilles fasten in place with spring-mounted screws that prevent rattles and squeaks.

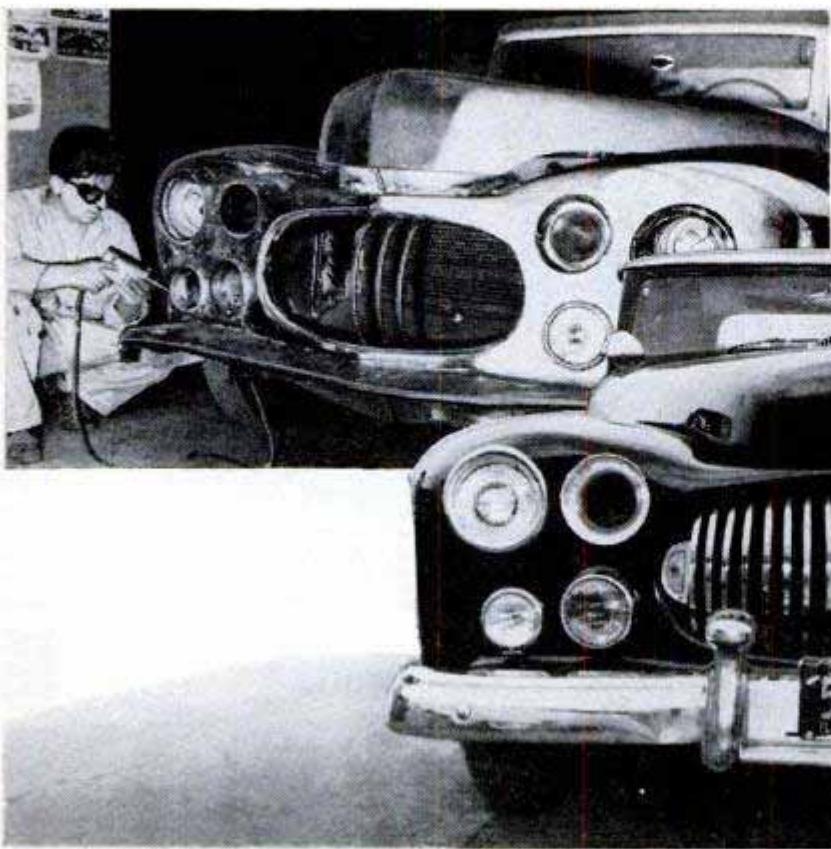
A few years ago it was stylish to cut a hole in the rear deck lid and mount the license plate inside, behind glass. Today the rear license plate ordinarily goes on the rear bumper. New shapes of plastic taillights go on the rear bumper guards or are faired into the rear corners of the



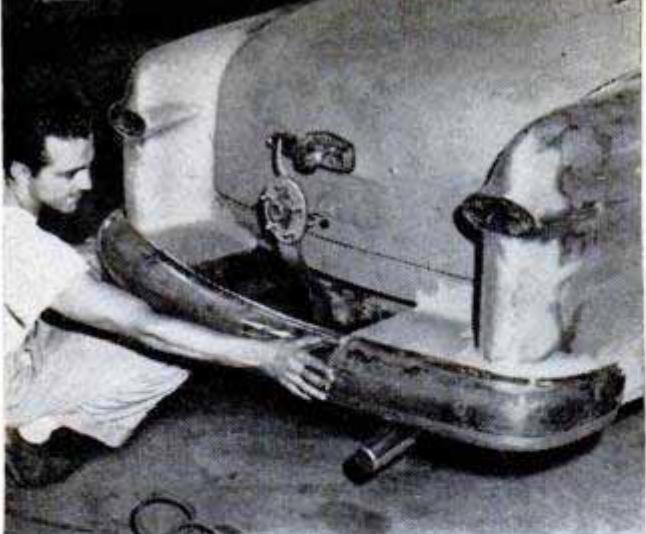
**Instrument panel of customized '41 Chevrolet coupe contains 15 dials, 32 push buttons; they all work**

body, either in the fenders or rear deck.

As one example of a good-looking custom car, though a bit extreme, consider the 1949 Ford coupe owned by Alan Anderson which is being converted into a "futuramic coupe de ville" by George and Sam Barris. The entire body was lowered five inches in front, eight inches in the rear. From the window line up, the top was rebuilt by reducing its height by  $3\frac{1}{2}$  inches, sloping the windshield back an extra inch. The central door and body posts were cut away to provide open sides for the car. Framed window glass is being installed in two pieces on each side.



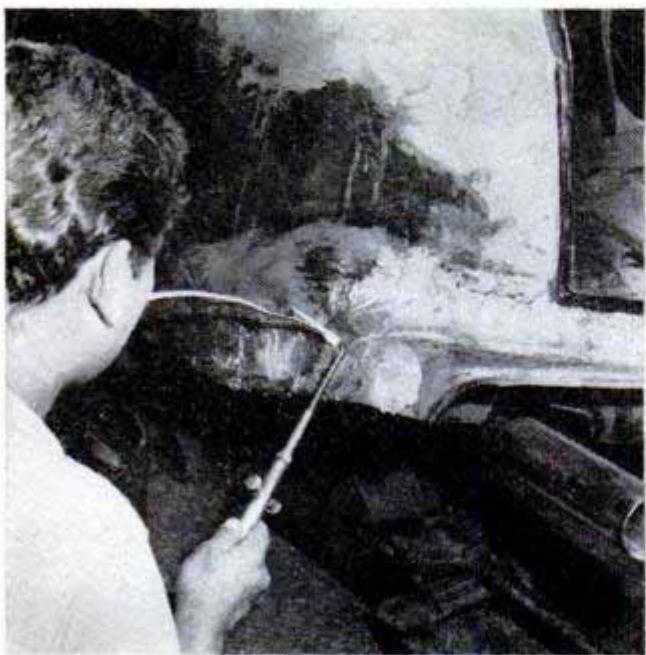
**Left, mechanic at work making front-end changes shown in completed job below. Changes include grille, holes for air horns and the various lamps**



Rear fenders on this car were extended farther back to permit mounting spare tire on outside by means of panels that were inserted in the fenders. A "continental" spare is a favorite with custom fans



Above, attaching custom grille of "floating" type in front of radiator. Split two-piece bumper will complete the assembly. Below, in building one-piece body, construction joints are first welded together and then smoothed over with plenty of body solder



Barris is extending the front fenders forward so the headlight will be six inches ahead of their stock position. The rear fenders are being extended back an extra eight inches and will be fitted with special taillights. The front of the car is to have a scooped, oval grille shell with "floating" grille bars and independent front bumpers. Doors and deck will be push-button operated. Cadillac wheel disks have been installed. Rear fender shields consist of '51 Mercury shields cut and fitted.

Another restyling example is a '50 Mercury owned by Wally Welch of Burbank. The top of his car was chopped three inches in front, seven inches in the rear, and the body itself was lowered four and a half inches in front, eight inches in the rear. Headlights were moved forward five inches by reshaping the fenders. A new design of grille was created by installing chrome "teeth" from a '51 DeSoto grille, turned to a different angle.

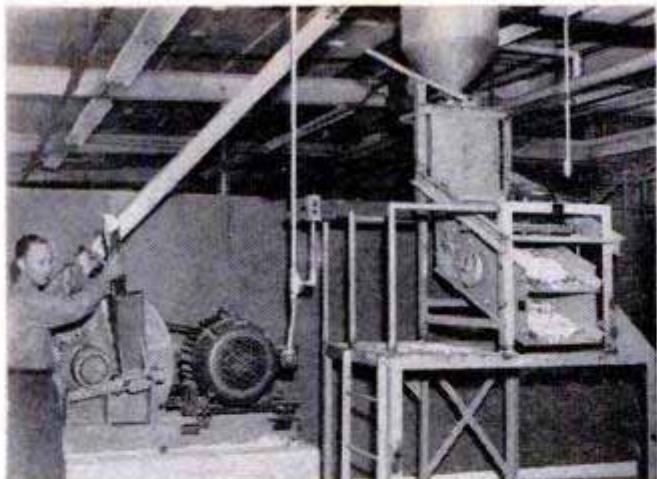
Part of the customizing details of another Mercury, owned by Louis Betancourt, include filling all construction joints to provide a one-piece body, lowering the car 15 inches by chopping the top and channeling the body, and installing a Mercury engine rebuilt to 300-cubic-inch displacement, a companion engine to one that set a record in its class of 175 miles per hour at last year's Bonneville speed trials.

Betancourt's car is painted a scintillating green gold outside, crystal green within. Steering column and dash accessories are chromed. At present, Betancourt is preparing to customize the upholstery and plans to install a curved rear seat and a front seat that slides forward on rails and converts into a bed.

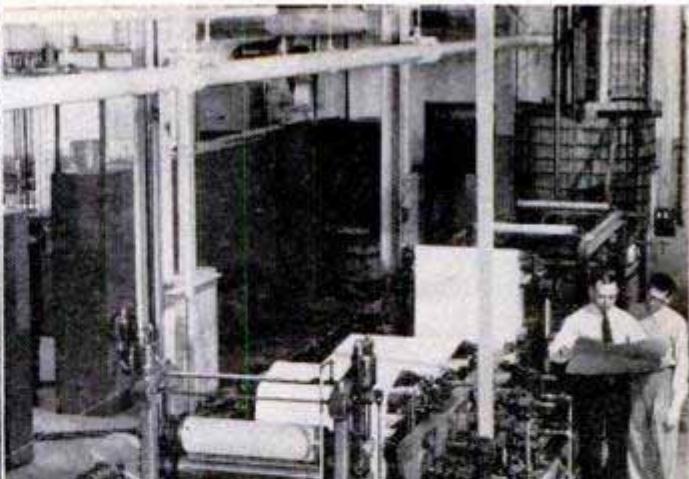
(Continued to page 284)

Exterior built up by welded strips and solder must be filed to satin smoothness before spray painting



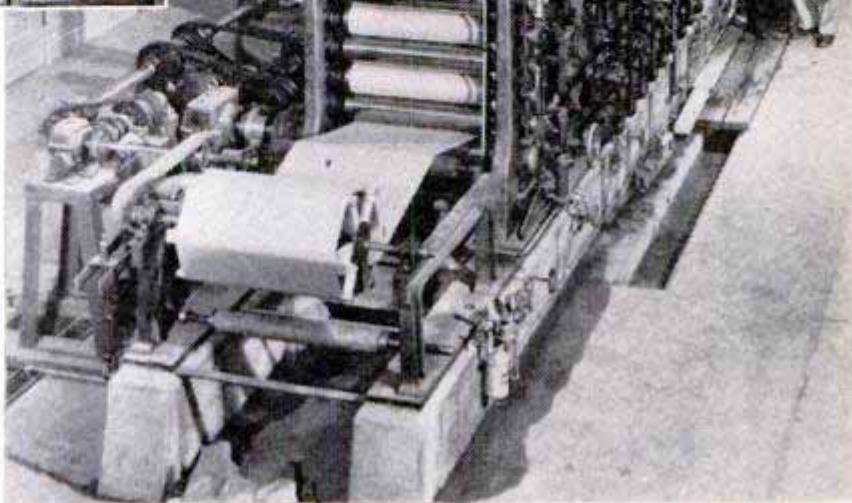


Worker feeds miniature logs into  
pint-size chipper to start process

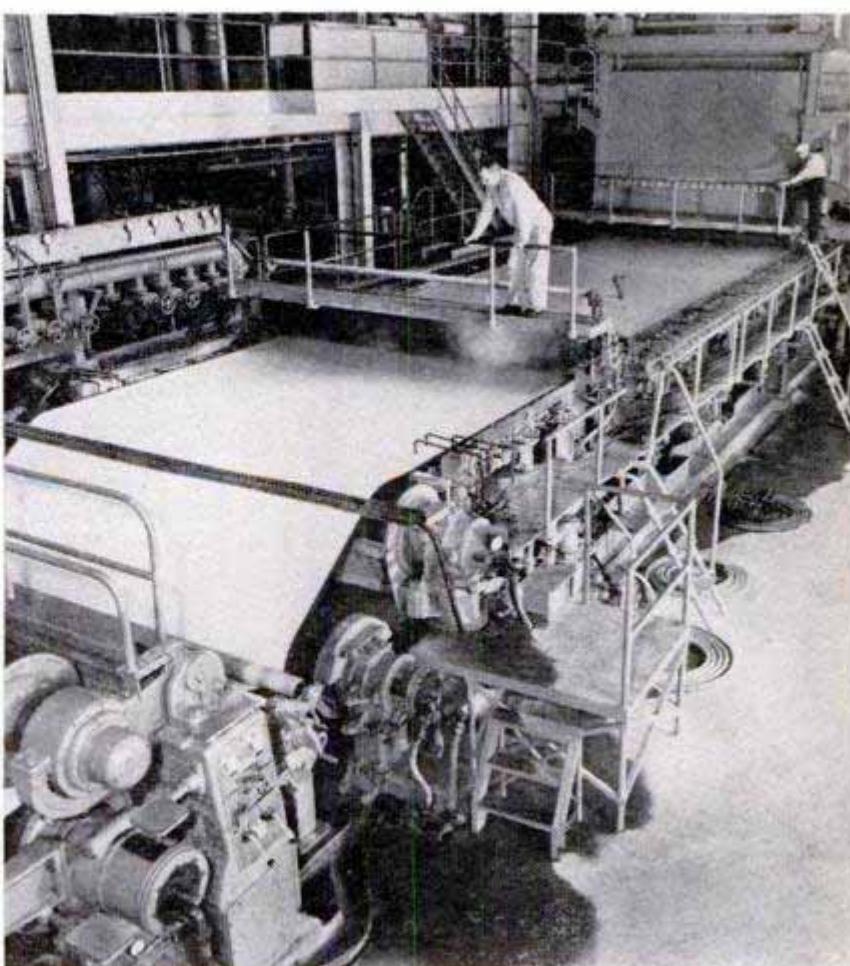


## Paper Mill— Sample Size

DIGNIFIED RESEARCH scientists chuckle like kids over a new toy when they operate a new paper mill near Camas, Wash., for the mill is a miniature—a little test plant that turns out a variety of paper products. Built by Crown Zellerbach Corporation near the site of its huge paper plant, the miniature mill is complete from a tiny log chipper to a pint-size paper coater. It's the heart of a \$500,000 research laboratory and performs all the functions of a real mill. The little chipper receives fireplace-size logs and reduces them to small chips for pulping. Later in the process a miniature press screens and rolls the fibers into paper in the same manner as its 420-foot prototype. The mill isn't operated as a toy—it contains all types of special equipment for testing new papermaking methods, and has been used to turn out paper from such materials as wheat straw and cotton stalks. Previously, any experimenting meant shutting down a commercial mill for a trial run. With the model mill, the research and production men also can discover "bugs" in a tricky process without involving a commercial mill.

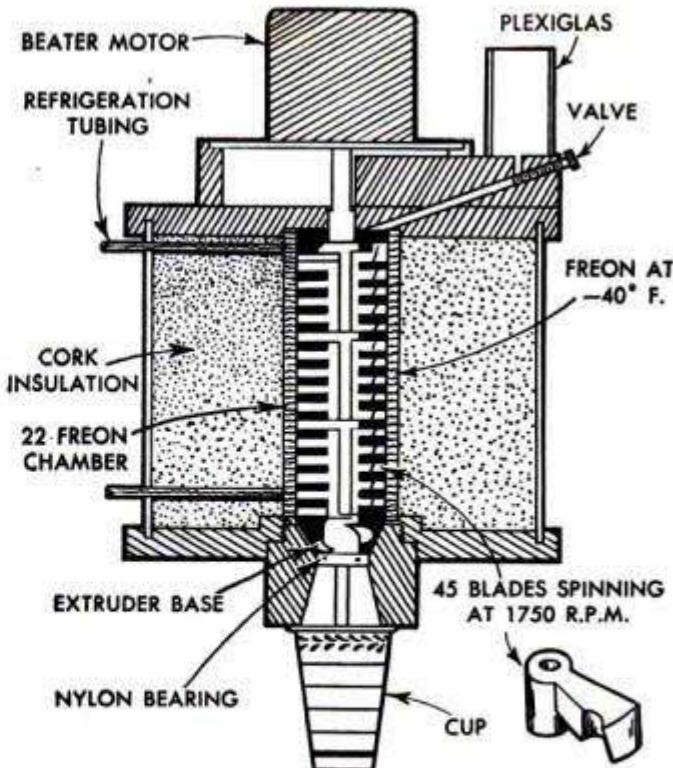


Miniature mill performs every operation of a commercial mill and can also be altered for experimental work. Above is the paper-making machine which turns out little 26-inch rolls. Below is a section of the prototype which produces huge rolls 15 feet wide





Quick-freezing feature permits customer to choose favorite flavor mix which is pumped from fountain



Rapidly spinning beater "atomizes" milk, alternately dashes it against frigid sides and scrapes it free

## Flash Freezer Supplies Milk Shake in Eight Seconds

Rich-tasting frozen milk shake is produced in eight seconds by a new flash freezer. Flavored mix fed from a reservoir at the top of the device falls through a narrow freezing cylinder. As it falls, it is alternately thrown against the sides of the

container and scraped free by a whirling beater until it finally collects at the bottom and is forced into the serving cup. The self-contained, easy-to-operate freezer permits each customer to choose his own flavor mix.

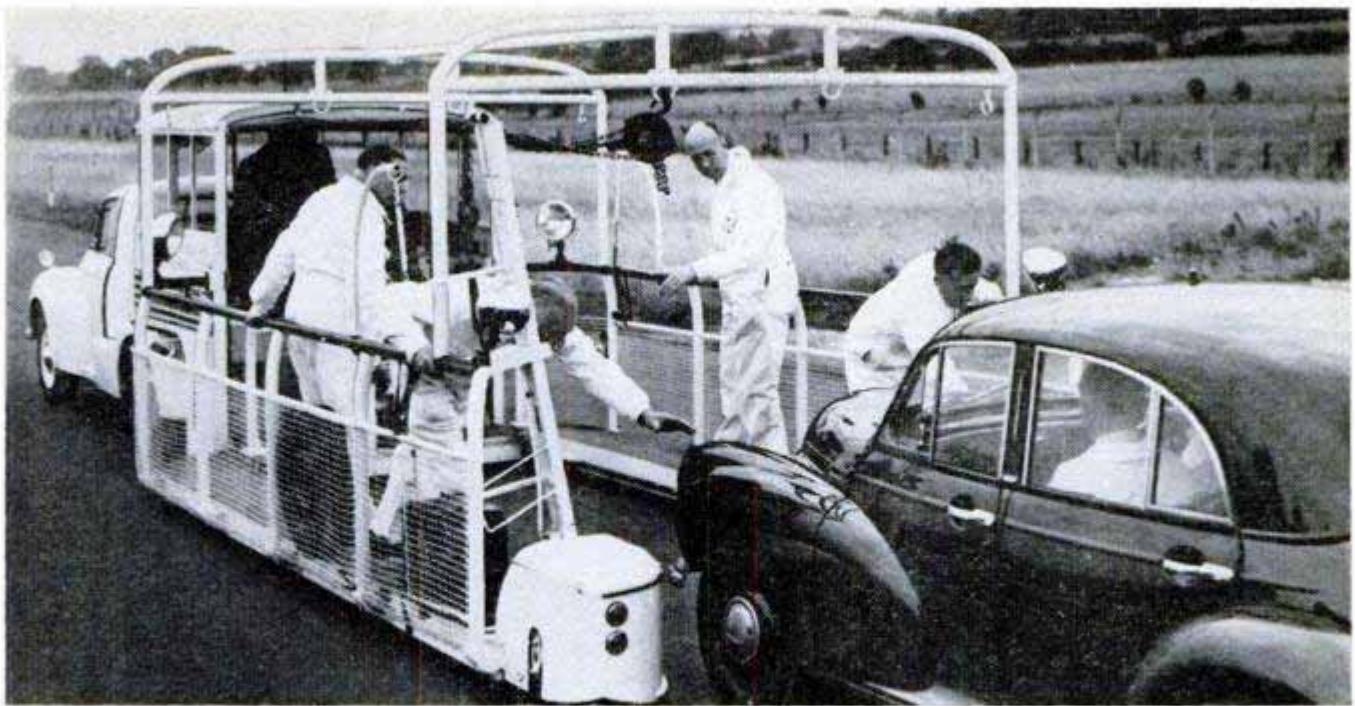


## Ironworker's Suit Wards Off Heat

Men who work with molten iron are fully protected from the heat by a strange costume designed in Austria. The outfit consists of boots, a long apron, big mittens, goggles and a cape with a loose hood. Atop the hood is a broad-brimmed "hat" which prevents droplets of molten iron from reaching the worker's neck. The new founder's outfit was recently displayed at the Austrian Museum of Technology.

## *They Call It Spin Fishing*

That's the title of a big full-color feature coming up in May, describing a new angling technique that's sweeping the country. Experts say we'll soon be a nation of spin fishermen. Spinning is so versatile you can use flies, plugs, surf-casting lures, live bait or your own recipe for doughballs. You can send your lures a good many yards farther than you can with ordinary fishing gear; you can do it even when you're hemmed in by bushes and trees; and you can be an expert with little practice. Best of all, you just can't backlash a spin-fishing reel. Don't miss the May article by outdoor writer Joe Godfrey, Jr., on this major new sport



Time for maintenance and the Minor is eased into the tender. All work was done at about 20 miles per hour

## 10,000 Miles Nonstop At 36 Miles Per Gallon

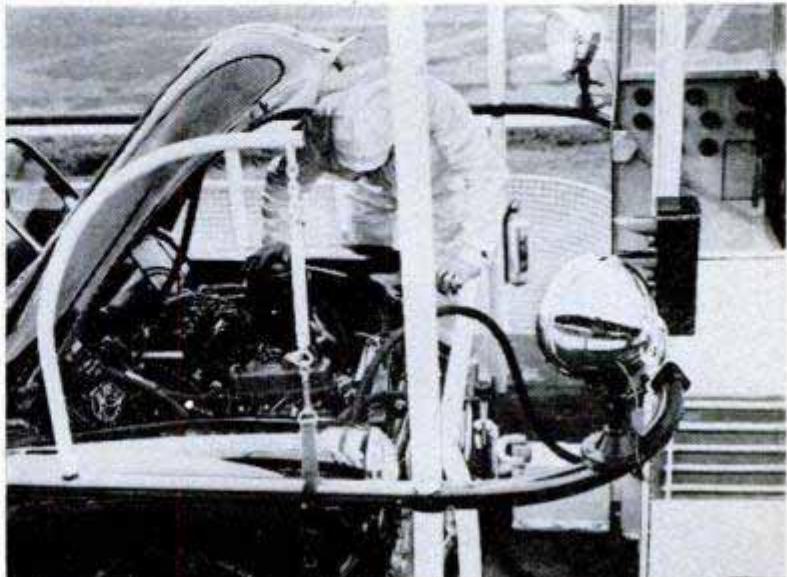
FOR NINE DAYS and nights a Morris Minor sedan rolled around a British race track without a stop. In those nine days, the car, tiny by American standards, went 10,148 miles, averaging 45.3 miles per hour and 36 miles per gallon (43 miles per Imperial gallon used in England). The Minor was driven into a U-shaped trailer for servicing. To guarantee that the car was always under its own power, a meter at the front of the trailer measured its forward thrust. At no time was the Minor towed.

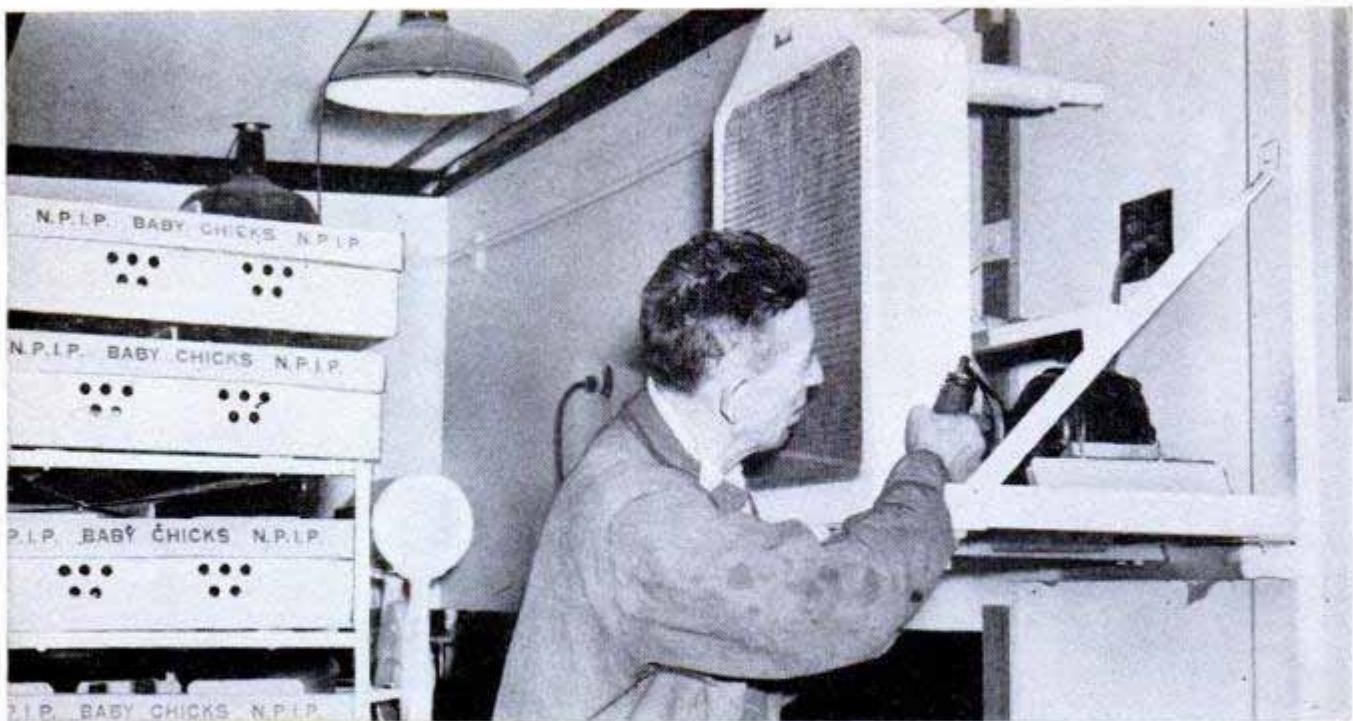
To change a rear tire, wheel was braked and raised. Other wheel kept driving car



Refueling in motion. A positive thrust against the trailer of at least 10 pounds was maintained by the car during servicing

Oil changes were made by pumping in new oil as old oil was drawn out. Directly ahead of car is device that measures thrust





No heat in the hatchery, so this farmer piped hot water through an old Pierce-Arrow radiator to make heater

## **Recipe for the Farm Mechanic: TAKE A JALOPY --**

By William Gilman

Home on the turkey range to the hired man is an apartment built atop an old truck chassis. He lives here while guarding the flock



YOU'LL FIND them all over the United States. Just about every rural township has one. His neighbors call him "quite an inventor," or kid him about his contraptions. He's the fellow who is always rigging up some kind of machine to save work around the farm.

To build a mechanical hired man he'll use old parts and just plain junk. Since a jalopy car is a good source of such things, it's his favorite stockpile of "strategic materials." In fact, one way you can recognize his place is by spotting an old car lying like an awkward beetle in the yard. Before it's dragged away and dumped into a gully, it's picked pretty clean.

Henry Ford would be a little amazed at all the uses found for his Model-A transmission. In a mechanically smart farmer's hands it becomes a just-about-perfect gearbox for governing the speed of the freight elevator, feed conveyor and manure cleaner that have banished pitchfork, shovel and backache from mechanized farms.

Actually, the American farmer usually drives a modern car, but values the parts in his old wreck for one of several reasons. His homemade machinery not only is cheaper than manufactured equipment but does exactly what his own needs require. Besides, he likes to tinker.

Whether he's in Maine or California, he has the pioneer Yankee spirit of Eli Whitney and John Deere. And close at hand he has a supply of junk—like the broken buzz saw from which Deere made the first steel plow—a plow that made modern farming possible.

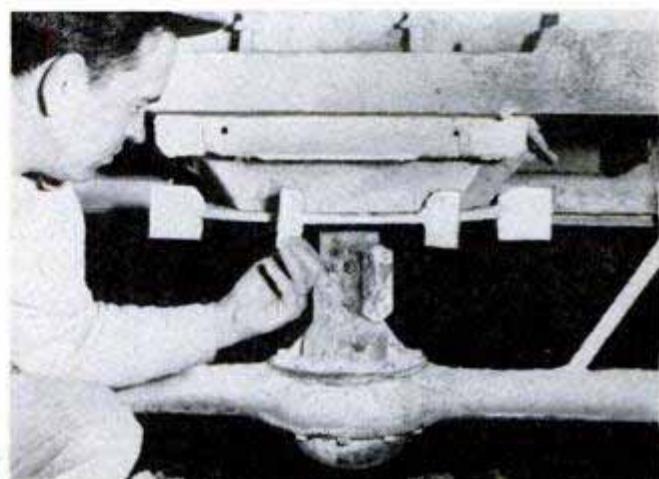
A champion gadgeteer among poultry farmers is Charles Nassivera, of Glens Falls, N. Y. His automatic egg cooler has been copied by many other chicken farmers. And his patented "dunker" is a contraption de luxe. It lowers a killed hen into 128-degree water, keeps her there 30 seconds, raises her to drain—and she's ready for the next step on Nassivera's conveyor line, the mechanical feather picker. The dunker was built from miscellaneous junk including a washing machine, hydraulic doorstop, heater and lawn mower.

Like others, Nassivera had done his share of picking old cars apart. For example, when he built his hen house he in-

stalled a stairway to the upper floors, but has never used it because he immediately rebelled against walking up with bags of grain and down with baskets of eggs.

The rear end of an old Willys solved things nicely. It's mounted under the roof of the four-story house. Around its drums wind the ½-inch steel cables that run the homemade elevator powered by a three-horsepower electric motor. The differential keeps the pull equal on both cables.

There are safety features too. The hoist is belt-driven from the gear-reduced motor. If the elevator goes too high, the belt starts slipping. To guard against a broken cable, Nassivera installed a sharpened steel dog at the bottom of each side of the elevator timbers. The cable compresses a spring which governs the dog. If a cable broke, the dog would dig into the elevator framework and keep it from falling. To make



Enterprising farmer dumps bag of lime into the hopper of his homemade spreader—a tractor-drawn trailer. Inset at right shows spreading fins welded to a steel plate beneath hopper. Differential spins the fins



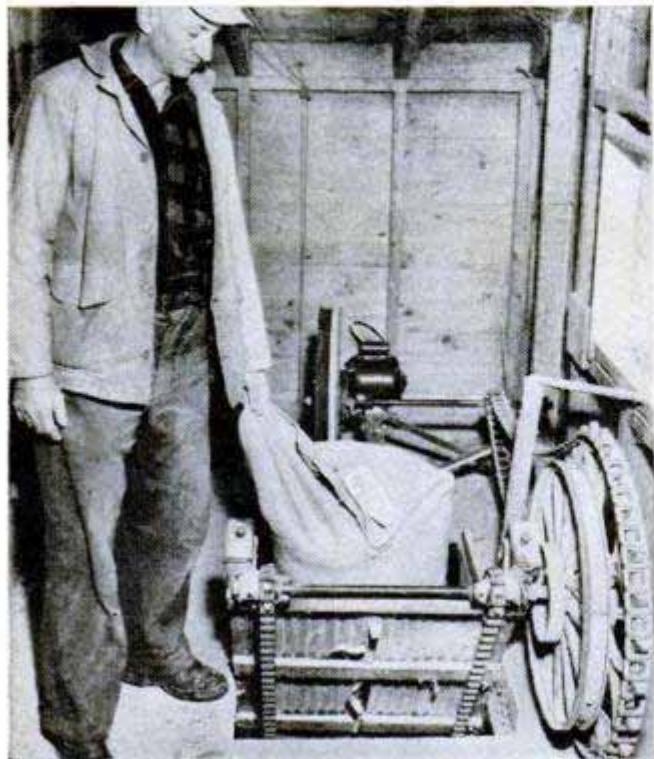


**Old dump truck now serves as self-propelled elevator for baled hay. Down goes truck bed, up comes elevator**

sure, Nassivera experimentally "dropped" the elevator by loosening a connection. The elevator dropped three inches and the dogs dug in so deep it took the inventor two hours to free them.

Two other jalopy parts solved another problem. Nassivera's incubator room was kept warm by a hot-water boiler, but the room where he dressed fowl for market was too chilly. He didn't want to waste space on a separate stove, so rigged up a heat circulator mounted on the wall. It's the radiator from an old Pierce-Arrow. Hot water is piped to it from the boiler. An old Chevrolet contributed the motor-driven water pump and fan.

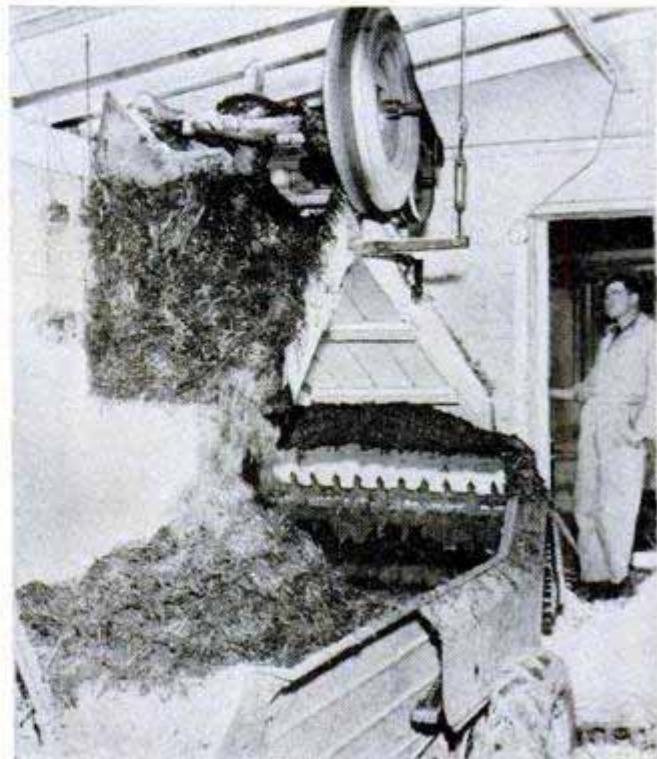
**Small motor working through an ingenious gear-reduction system brings bags of feed up to second floor**

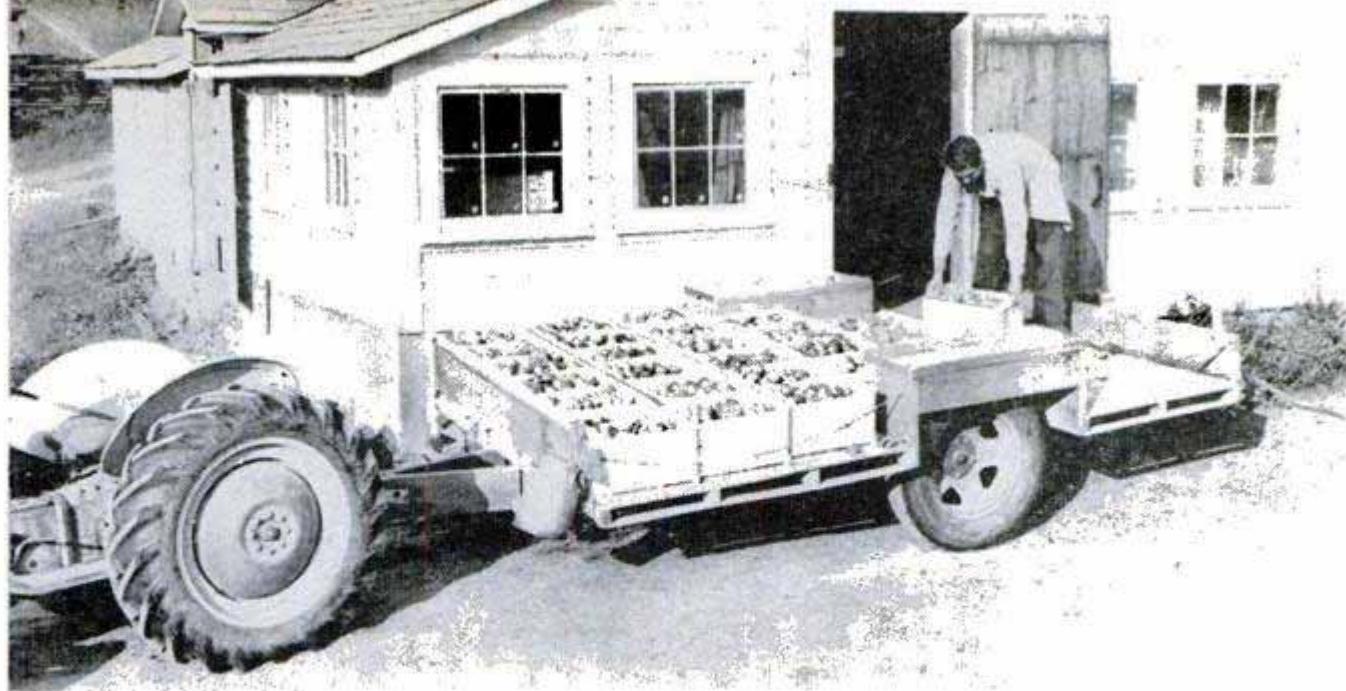


New England, of course, is the traditional mother of invention and it's here that jalopies don't die—they just fade away. For example, if there's any life left in the old motor, the car is used as a power plant. Sometimes, it's a "doodlebug" to do the work of a small tractor. Or, by jacking up the rear end and attaching a belt, the farmer has something to run his saw or feed grinder.

When the motor is too far gone, the serious stripping starts. Even the farmer who isn't a mechanical genius can always find a use for car wheels. John Pratt, Clarendon, Vt., mounted a pair of wheels side by side over the feeding apron of his ensilage

**Two Ford transmissions make speed just right in barn cleaner that carries out manure, dumps it in spreader**





Farm trailer built from the front end of an old truck now totes up to 38 boxes of apples from the orchard or 1½ tons of hay from the meadow. Inventive farmer built the platforms low to minimize necessary lifting

cutter. They act as rollers that press down the incoming green hay and keep it from clogging the opening.

There's always use for the trailer that can be built easily out of a car's front or rear end. Some are simple affairs for transporting grain, milk or young stock. Some are built low and large for hauling hay from the meadow or boxes of apples from the orchard.

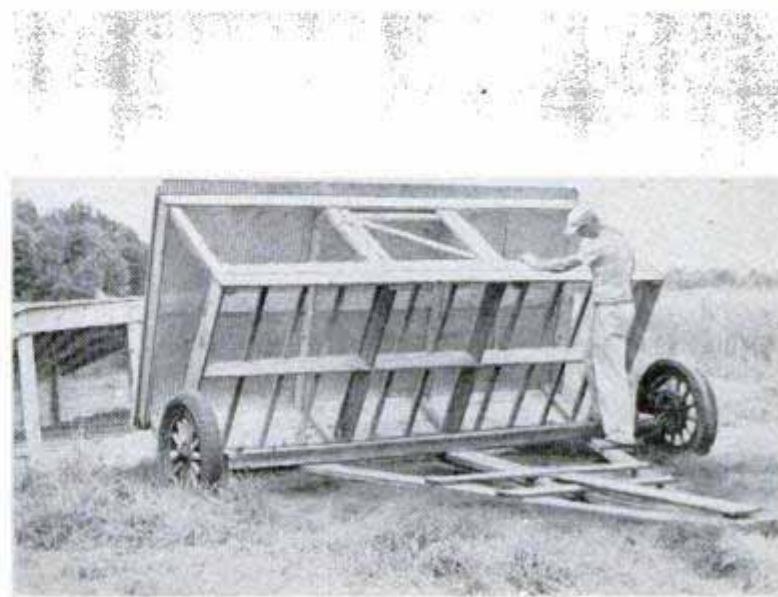
Or take the special trailer built by poultryman Cecil Chadbourne for moving an awkward range shelter. His trailer, pulled by a tractor, was made by cutting an old car's front axle in two and inserting a four by six-inch timber that widened the wheel span to 12 feet. Scrap lumber completed the frame onto which Chadbourne tips the range shelter.

Others use all four wheels to make a heavy-duty wagon. The trailers built by Alfred Pierce, Claremont, N. H., are good examples. A tractor runs them from field chopper to silo. Mounted below the trailer's rear gate is a drum around which a canvas winds as it "self unloads" the chopped hay or corn. It's run by a portable motor.

Robert Goodell, Putney, Vt., saw no reason why he couldn't use his old truck both to haul chopped feed and self-unload it. This way, he can unload anywhere—no need to be near an electric outlet for operating the unloader motor.



Old truck's motor turns roller to move a canvas belt on bed of vehicle. Belt slowly unloads field-chopped hay. Below, the axle of an old Buick, cut in two and lengthened with a timber, becomes tractor-drawn trailer for moving bulky range shelters



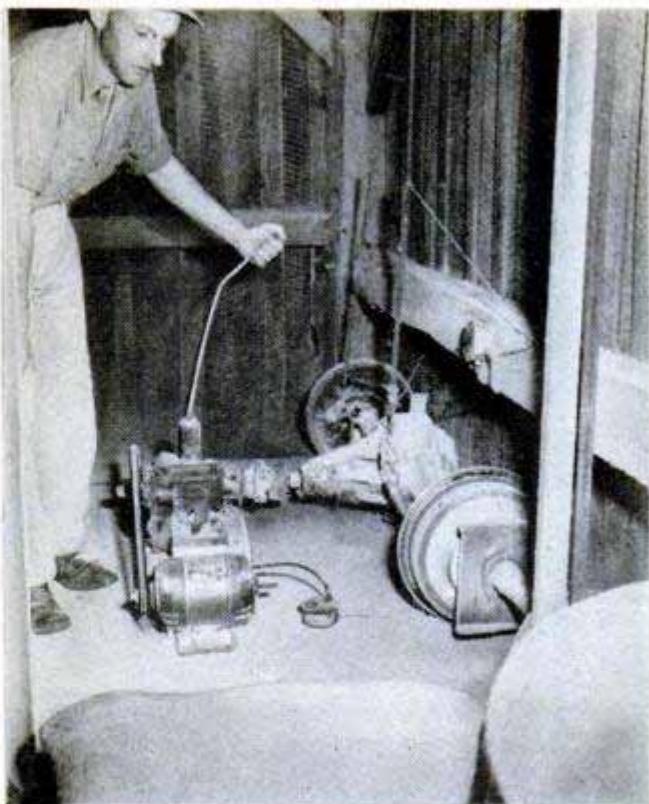
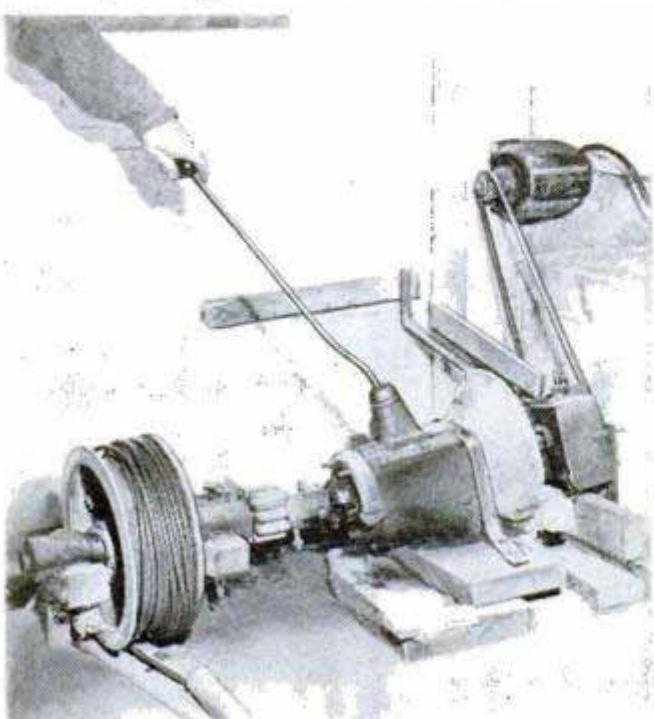


**Hand pressure "throws in" clutch on electric hoist which lifts milk cans. Wall pivot is Nash drive shaft**

Goodell added a power takeoff to the jalopy truck. It operates a pair of pulleys at the rear. They, in turn, transmit power through the gearbox of an old car, and from this homemade gear reducer the power runs the main bull gearing from an old tractor's rear end—which runs the winding drum.

Suppose an old truck has lost its motor. Turkey farmer Arthur Goodnow, Brandon, Vt., converted one into an apartment which keeps the hired man home on the

**Washing-machine gearbox and Model-A Ford transmission provide gears for belt which removes manure**



**Freight elevator in a three-story hen house still has "feel" of the old Pontiac which supplied parts**

range while guarding Thanksgiving birds against real foxes and two-legged ones.

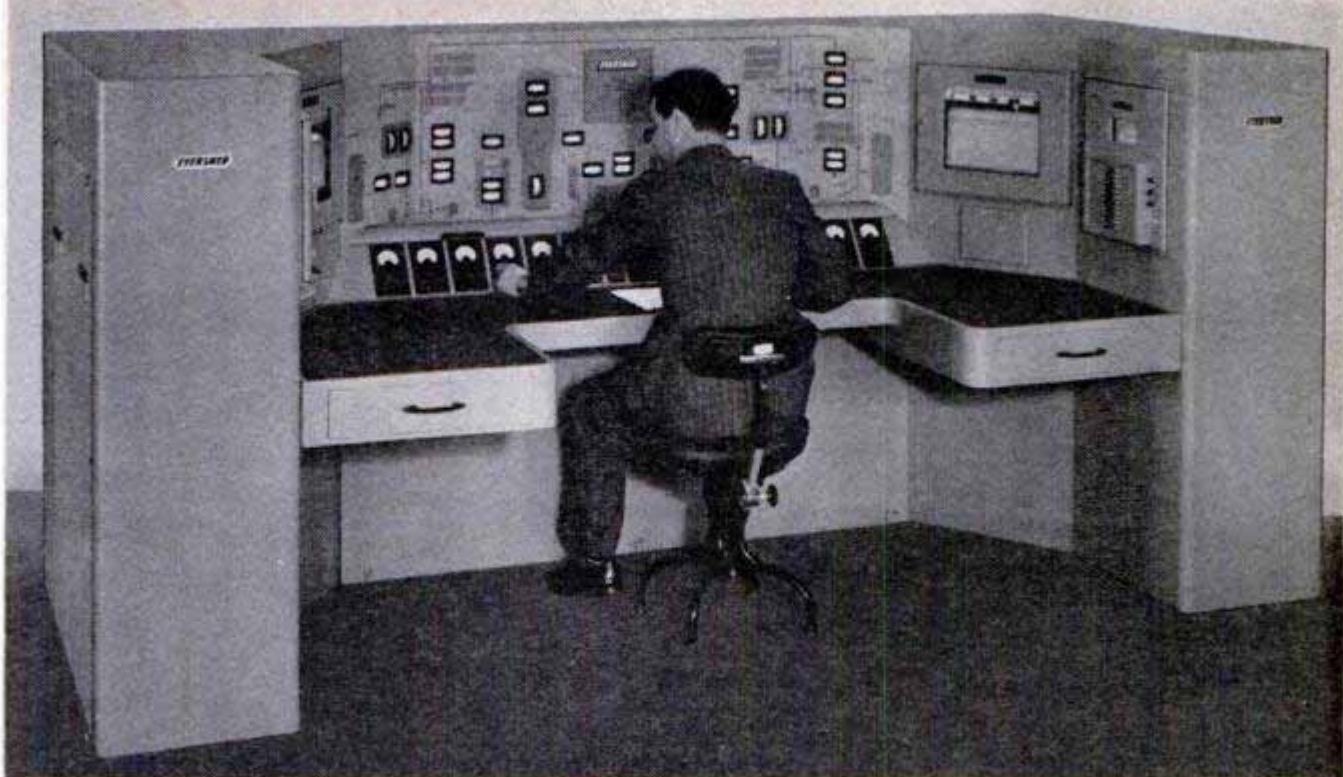
When the flock is moved to a new pasture the truck is towed there by tractor. The main room is furnished with a stove, lamp and table. A room built over the cab contains a cot, spotlight and choice of weapons—either single or double-barreled shotguns.

Another Vermont Yankee, James Leach, Jr., got hold of a 16-year-old dump truck that could still run well enough for what he had in mind—a self-propelled elevator for baled hay. He mounted his homemade conveyor over the dump body and cab so that it rides flat as Leach moves from one farm and barn to another. The rig saves all the work of moving a separate elevator around. When the dump goes down, the conveyor goes up to a window.

Many uses can be dreamed up for the transmission from a jalopy. It's a made-to-order gadget for gear-reducing the power of an electric motor. For example, dairyman Ball Lyons, Bennington, Vt., rigged up a gutter cleaner that automatically takes manure out of his cowbarn in three minutes. The manure gathers on top of a movable belt in the gutter. It's run out of the barn and up a ramp where it empties into the waiting spreader.

This outgoing trip is powered by a one-horsepower electric motor that runs through a V-pulley which, in turn, connects to a jalopy mowing machine parked outside. The mower was simply Lyons'

(Continued to page 288)



Technician watches windows, controls operations in plant with hand switches. Below, units slip out for repair

## Single Control Panel Operates Oil Refinery

Engineers now are able to supervise and control an entire manufacturing plant through a single control panel. Modern oil-cracking plants all over the world have such central control rooms. One example is in England, where one man seated at a panel can control all refining operations. Windows built into the panel tell him the pressures, temperatures, rates of flow, liquid levels and other factors in the refinery. Within reach are electronic controllers to operate valves throughout the plant. Each controller is a unit which can be slipped from the back of the panel for repair. Electrical impulses from the controllers are converted to pneumatic impulses to operate the valves. Thus the supervising engineer has full and instant control over every step of the process.

Coffee accounts for 40 percent of our imports from Latin America, according to a recent report in the *Chemical and Engineering News*.



## Lightweight Ocean-Crossing Cable Is Insulated With Plastic

Easier to handle and less expensive to lay than the present steel-jacketed cable that links continents, a plastic-insulated ocean cable is undergoing tests off the coast of Long Island. The cable uses a 10-strand cadmium-bronze wire that has been insulated with polyethylene plastic. New techniques of paying out the cable had to be

developed as well as new splicing methods. Once a cable comes to rest on the ocean floor, it is subjected to very little wear because it lies in soft ocean silt. The heavy protective jacket is necessary only when the cable is being lowered or raised. The new paying-out techniques have eliminated the need for this heavy protection.



## "Four Year" Ship Model Driven by Steam Engine

Powered by a home-designed steam engine, a model of the *Empress of Britain* cruises across a pond in Kensington Gardens, London, each Sunday morning. The seven-foot model is the work of Alfred Kidd, a London bus driver, who spent an average of three hours per day for four years in designing and building it. The craft's double-acting steam engine drives twin propellers. Weighing 93 pounds, the model is transported to and from the water on a "dock on wheels" which is pushed into the water to float the liner. Despite the accu-



racy and detail of the model, Kidd figures the necessary parts cost him only \$24.



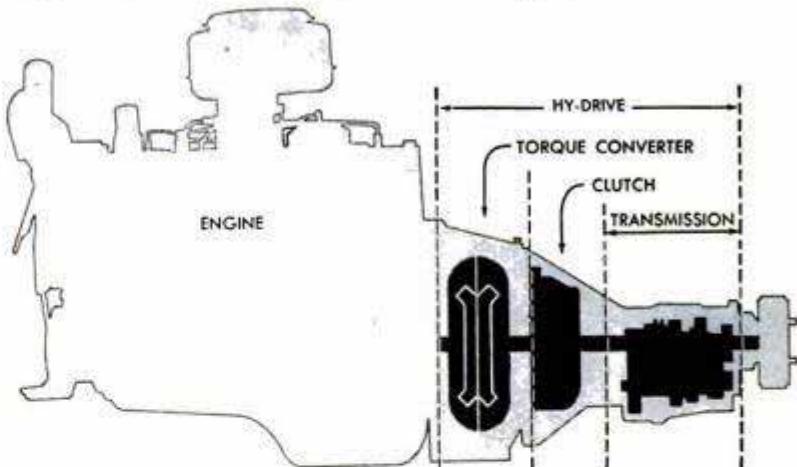
## Ground Walnut Shells Are Used to Clean Aluminum Tire Molds

Finely ground shells of English walnuts effectively clean aluminum molds used in tire manufacture at Firestone. The shells are less abrasive than sand and less likely to pit the molds. They are blasted against the mold by compressed air. Once the mold is clean, the shells are drawn out by vacuum through a tube. The company purchases 125,000 pounds of ground shells a year for cleaning molds.

In a single wing of a modern jet bomber there are nearly 6000 bolt holes which must be accurate within one to two thousandths of an inch, or less than the thickness of a human hair.

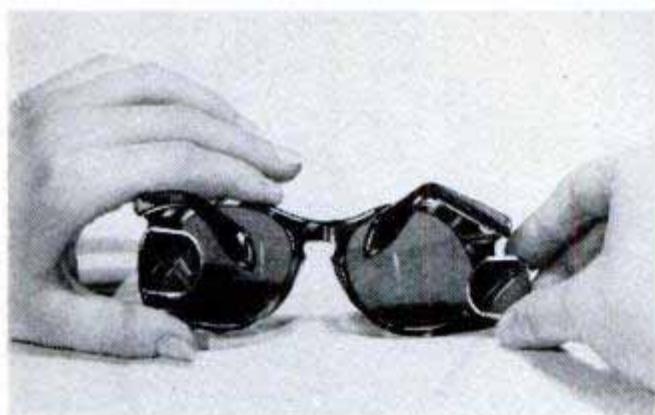
## Hy-Drive Transmission for Plymouth Reduces Shifting of Gears

Shifting of gears is reduced to a minimum with Plymouth's near-automatic Hy-Drive transmission just announced, which operates in conjunction with the standard three-speed transmission. The Hy-Drive transmission is of the torque-converter type similar in design to that used in the Dodge and DeSoto, also developed by Chrysler engineers. The important difference is that Plymouth's Hy-Drive is linked to the conventional transmission and offers the use of the latter in first and second. Although the foot clutch is retained, it need only be used in making the initial shift into high. No further foot action is needed for stopping or starting unless the driver stalls the engine or deliberately wishes to shift into first or second. Hy-Drive starts off smoothly in high. The torque converter



uses the engine oil and is connected with the engine-oil system. A drop in engine-oil pressure does not affect the transmission. Oil capacity, however, has been increased from 5 to 10 quarts. Filters and seasonal changes are recommended. The unit is simple in design, low in price.

## Sunglasses Have Small Mirrors to Provide a Backward View



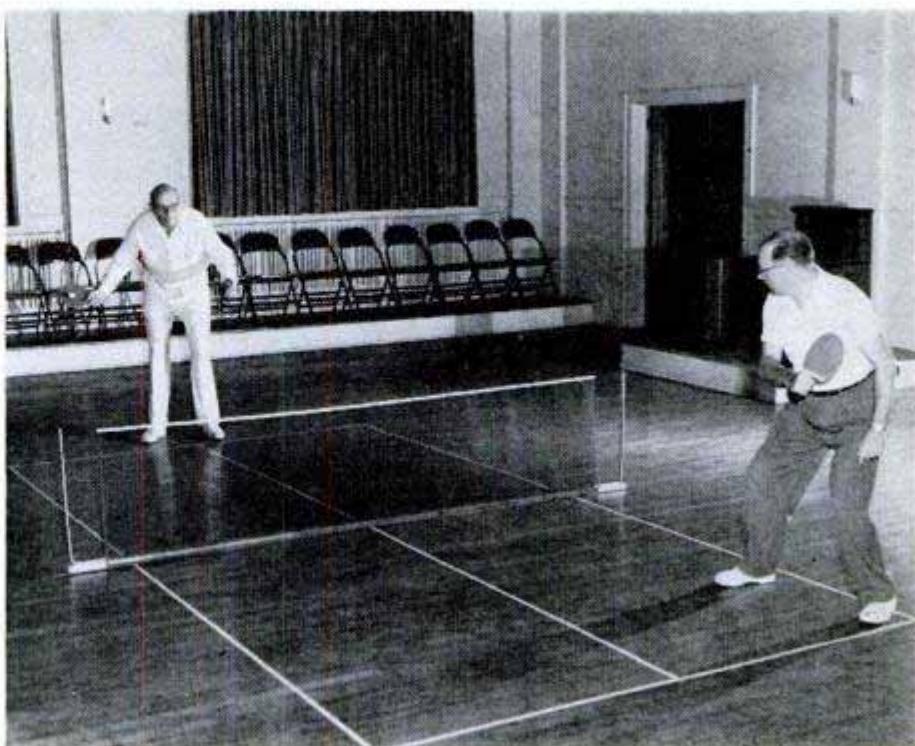
You don't have to turn your head to look behind when you're wearing mirror-equipped sunglasses. Two small mirrors slide into the frame. They can be removed, if desired. The glasses can be used to advantage by cycle deliverymen, hunters, detectives and fishermen, according to the manufacturer.

With the synthesis of morphine, the pain-easing drug of the opium poppy, only strychnine is yet to be synthesized among the alkaloid chemicals found in plants.

## Floor Tennis Combines Elements of Two Games

Called floor tennis, a game originated by Dr. H. A. Hattstrom of Glenview, Ill., is a mixture of tennis and table tennis. It is played with a table-tennis ball on an 8 by 16-foot court, with a 24-inch net. The bats are slightly larger than those used in table tennis, and the ball is bounced before being hit by a serving stroke which is made from below the waist.

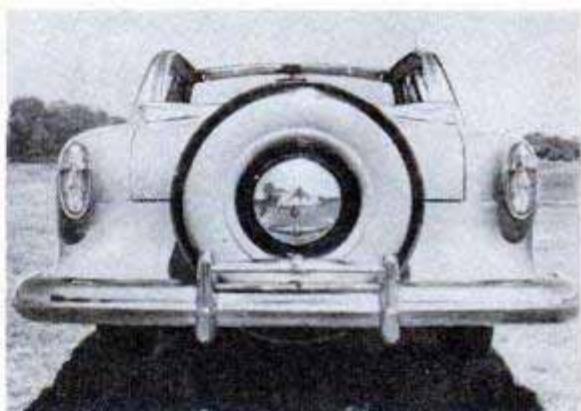
Setting a world's distance record for a non-stop flight by helicopter, a Bell 47D flew 1234 miles from Fort Worth, Tex. to Niagara Falls, N. Y. on September 17, 1952.



## THREE NEW RAMBLERS

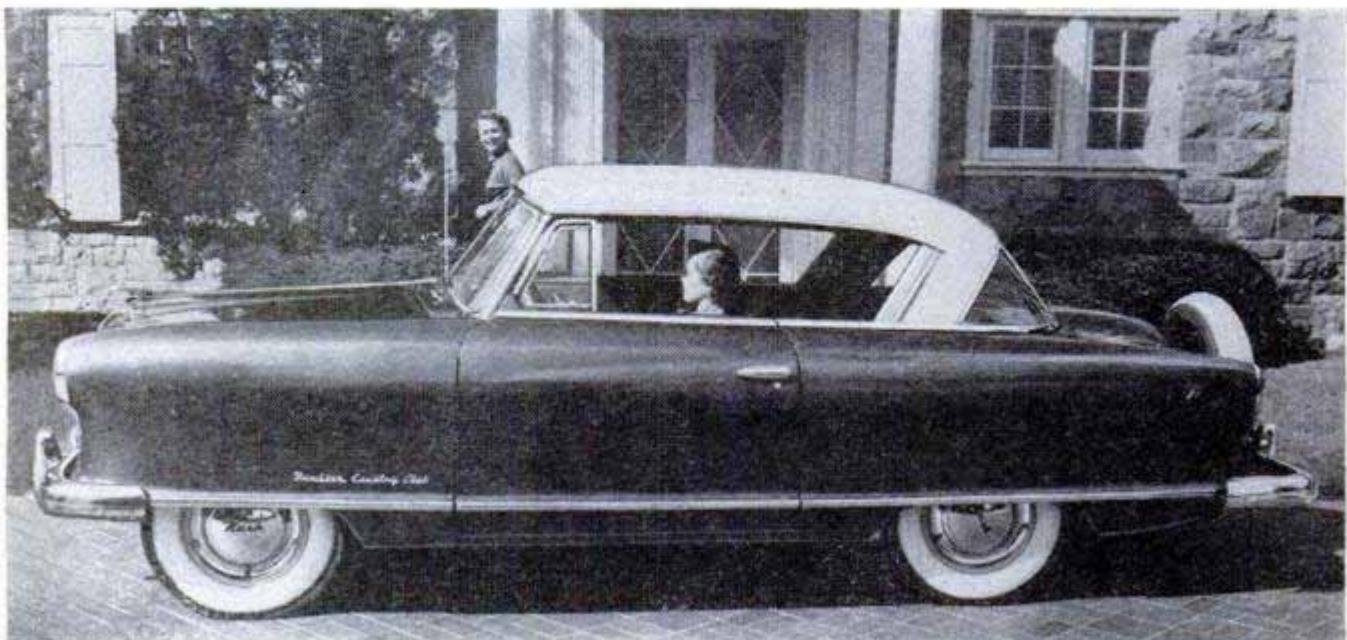


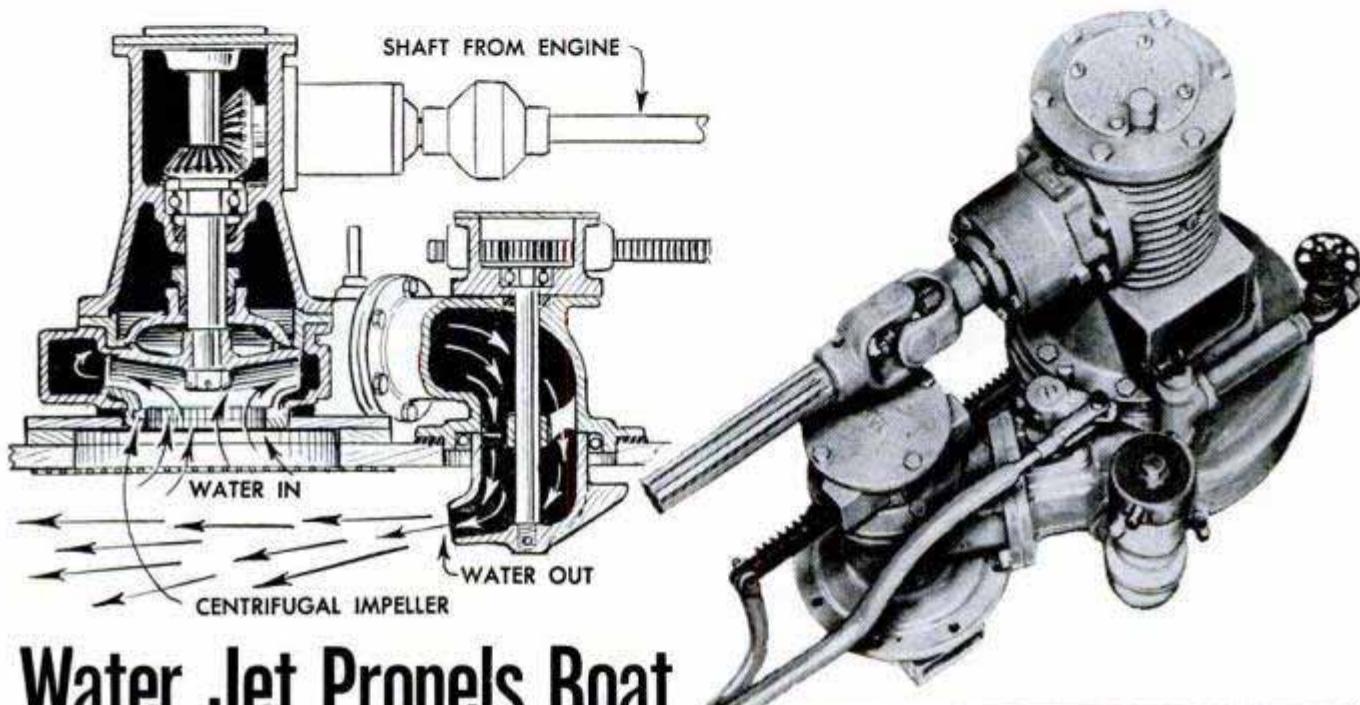
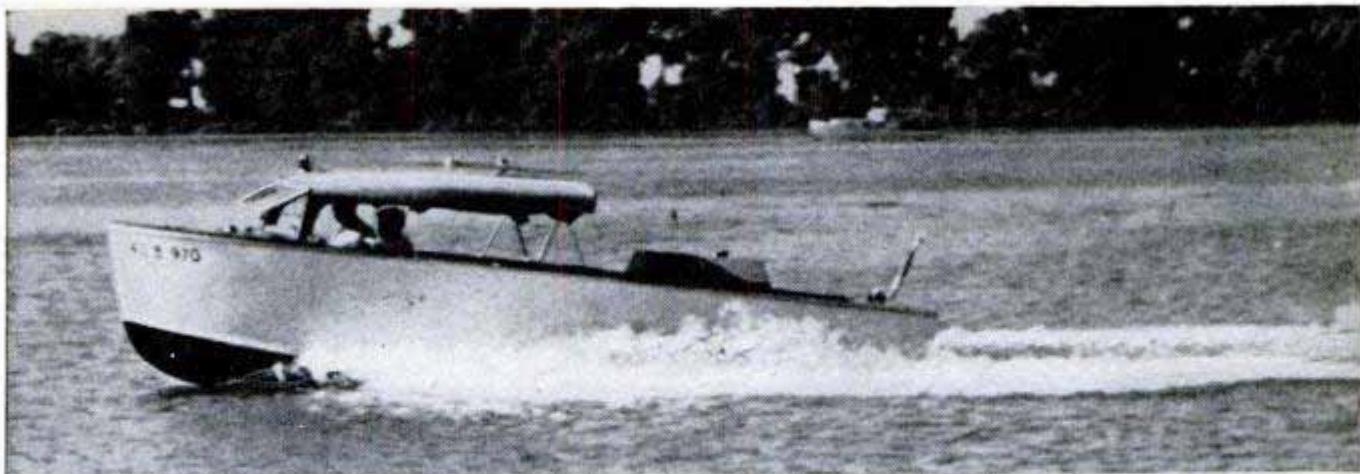
Higher fender lines make the 1953 Nash Rambler look longer and lower. Adding to the sleek appearance are a functional hood scoop and a simple oval grille. The new model was styled by Italian designer Pinin Farina



Left, the 1953 station wagon. Horsepower of Rambler engines has been boosted slightly to 85 on standard models, 90 on Hydra-Matic models. Right, Continental tire mount is standard on convertibles and hardtops

From the side, the Rambler's longer look is apparent. This is the hardtop convertible, the Country Club. Glass area in all models is increased. Windshield has 725 square inches, 140 more than in previous years





## Water Jet Propels Boat

WATER SQUIRTED from a nozzle beneath the stern propels a boat fitted with a new water-jet propulsion unit. The water is drawn through a grille in the hull, is put under pressure by a centrifugal pump and emerges from the curved nozzle as a powerful jet stream which pushes a 17-foot runabout along at 20 miles per hour.

Just recently adapted to pleasure-craft use, the water-jet principle has proved successful in tugs, fireboats and armed-forces craft. Some assets claimed for the water-jet propulsion unit are: It eliminates clutch and gearing; eliminates propeller and rudder, since the jet both steers and propels; provides power brakes (will stop a small boat in its own length from full speed); digs itself out of sand banks or beaches where it has run aground; will operate efficiently in a mixture of up to 60 percent solids (mud or sand); gives full power under all loads; provides outstanding maneuverability, more so than rudder-steered craft; is self-cleaning; provides for power bilge emptying and has an adaptation which provides water for fire fighting.

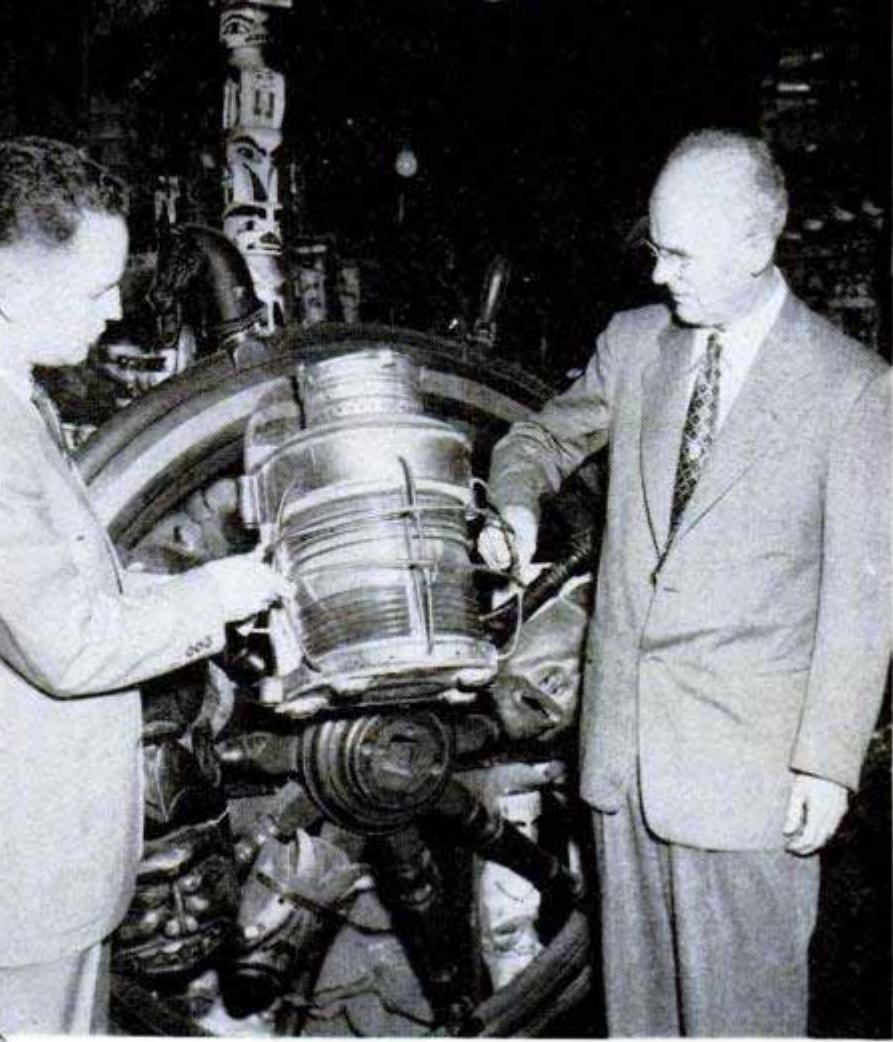
The 61-horsepower engine in the unit



Water is drawn through grille at right and enters propulsion unit, which shoots it out through curved nozzle to provide power. Turning of nozzle steers boat

weighs 400 pounds, and the pump and jet installation totals 101 pounds. The nozzle, which both pushes and steers the boat, extends 3½ inches below the hull bottom, permitting the boat to operate in water as shallow as 11 inches. When in motion, the boat can be driven over logs or other obstacles without damaging the boat or the obstacle. The centrifugal-impeller-type pump is attached to the piston engine by shaftings and will deliver 1000 gallons of water per minute. Fuel consumption is said to be about the same as screw-driven boats. Fishermen using the boat can troll at any speed and can fish safely in marshes.

Shop managers check  
antique whaler's lantern.  
Below, wooden Indian  
holds jumping beans



## THIS CURIOSITY SHOP BEATS THE DICKENS

**By Ray Gibbs**

DO YOU HAVE a mustache cup for sale . . . left-handed . . . about 1880 vintage?"

The average clerk in the average store would throw up his hands at such a question, but not the clerk in Ye Olde Curiosity Shop on Seattle's Alaskan Way. He began rummaging around, and in 3 minutes and 41 seconds came up with a cup manufactured years ago to prevent dunking of a lip adornment. Left-handed, too.

A customer in the store examining a pair of dueling pistols once owned by a pre-Civil War gentleman of the South, turned to his wife and said:

"If I bought these, I'll bet I could even get my change in Confederate money."

The wife smiled. "That you could. Look, there's some Southern currency over in that corner."

The shop's variety is endless. There are fine oriental and Alaskan carvings, fleas in dresses, shrunken human heads, deadly blowguns, an Eskimo shovel cut from a whale's rib, exquisite silks, totem poles two inches to 30 feet tall, the giant tusk of a prehistoric elephant, an ox yoke which linked the plodding team of pioneer Ezra Meeker and an Eskimo sled with ivory runners.

Perhaps no one knows what all is crammed into the world-famous little shop tucked like a sea gull's nest on

the water's edge beneath Coleman Dock, not even Russell James, owner and operator, whose pleasant smile has welcomed visitors since 1914.

The other day James, probing in a corner of the shop's basement, came upon a heavy wooden box on which was scrawled simply "1907." Being a curiosity-shop operator, he was curious and ripped open the lid. In the box was a fortune in Eskimo handmade articles of leather and ivory—mittens, moccasins, necklaces, head adornments. Some pieces were a century old.

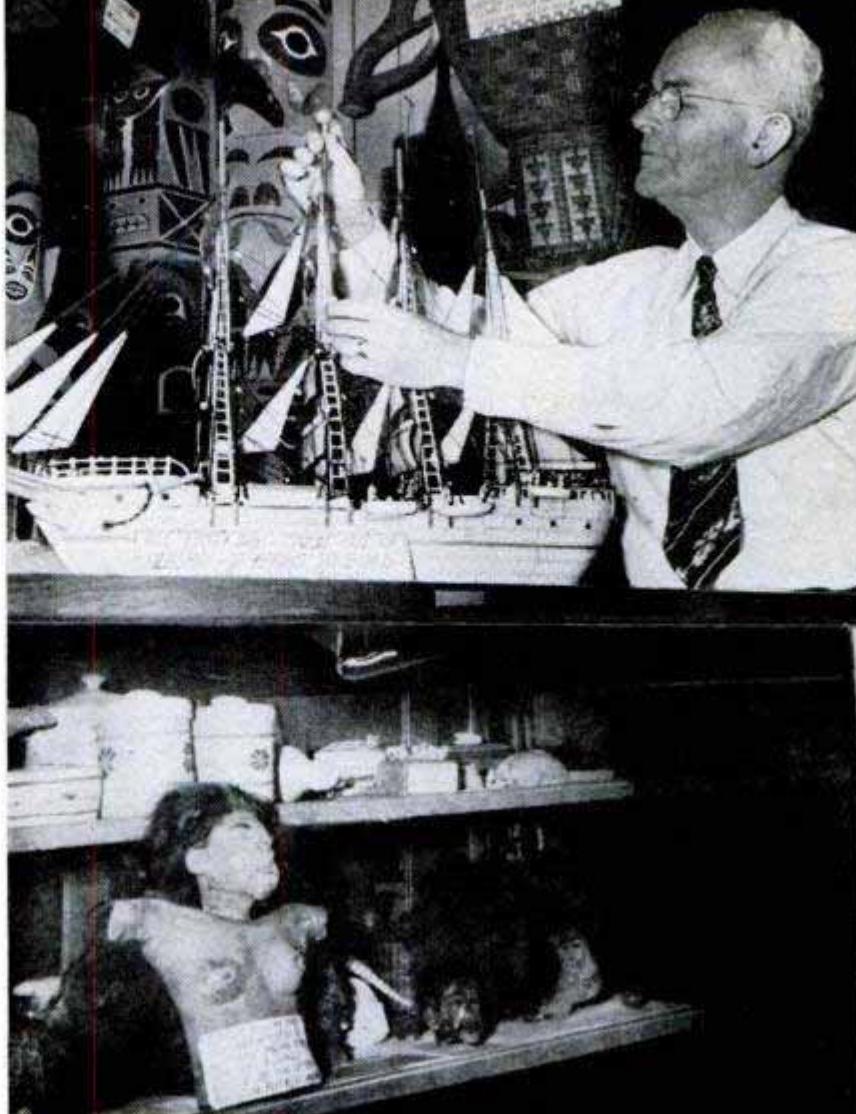
History is all over the place. If you ask James to show you a brass lantern from an old whaling ship, which rests high on a shelf, he'll climb on a wooden box to get it down. Black lettering on one side reads: "Capt. Amundsen North Polar Expedition."

The shop was started 54 years ago by James' late father-in-law, J. E. Standley. When Standley was nine years old in Ohio during the Civil War, his teacher gave him a book for having the neatest desk in the class. The book: "Wonders of Nature."

That started Standley on many a summer's trek along the Ohio River in quest of Indian and other curios. When he later opened a grocery store in Denver he took his curios with him, and collected more. They crowded the groceries, but drew a lot of customers. Then in 1899 he thought it would be more fun to sell curios than groceries. Seattle, still on the raw frontier side, was booming and looked like a good site. He set up Ye Olde Curiosity Shop on the docks that step off to the Orient and Alaska. Sales the first three days totaled only 25 cents, but they have been picking up ever since.

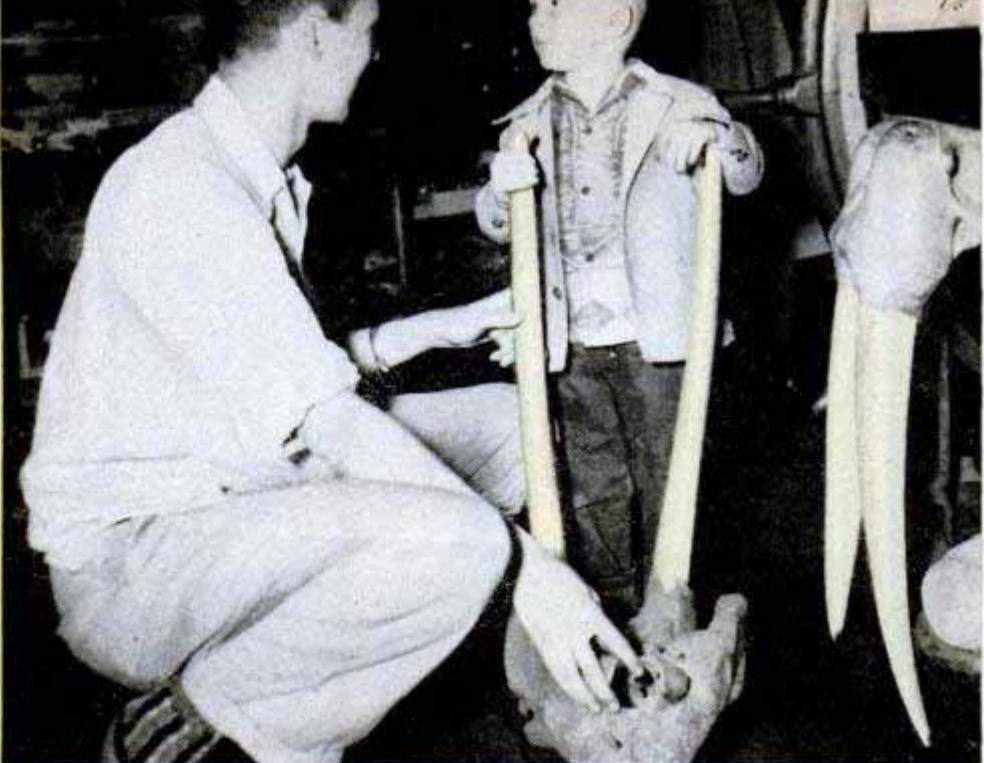
Standley died in 1940 but the shop is still in the family. Russell James, who married Standley's youngest daughter, took over from the founder, and now his son Joe is associated with him.

It's a never-ending source



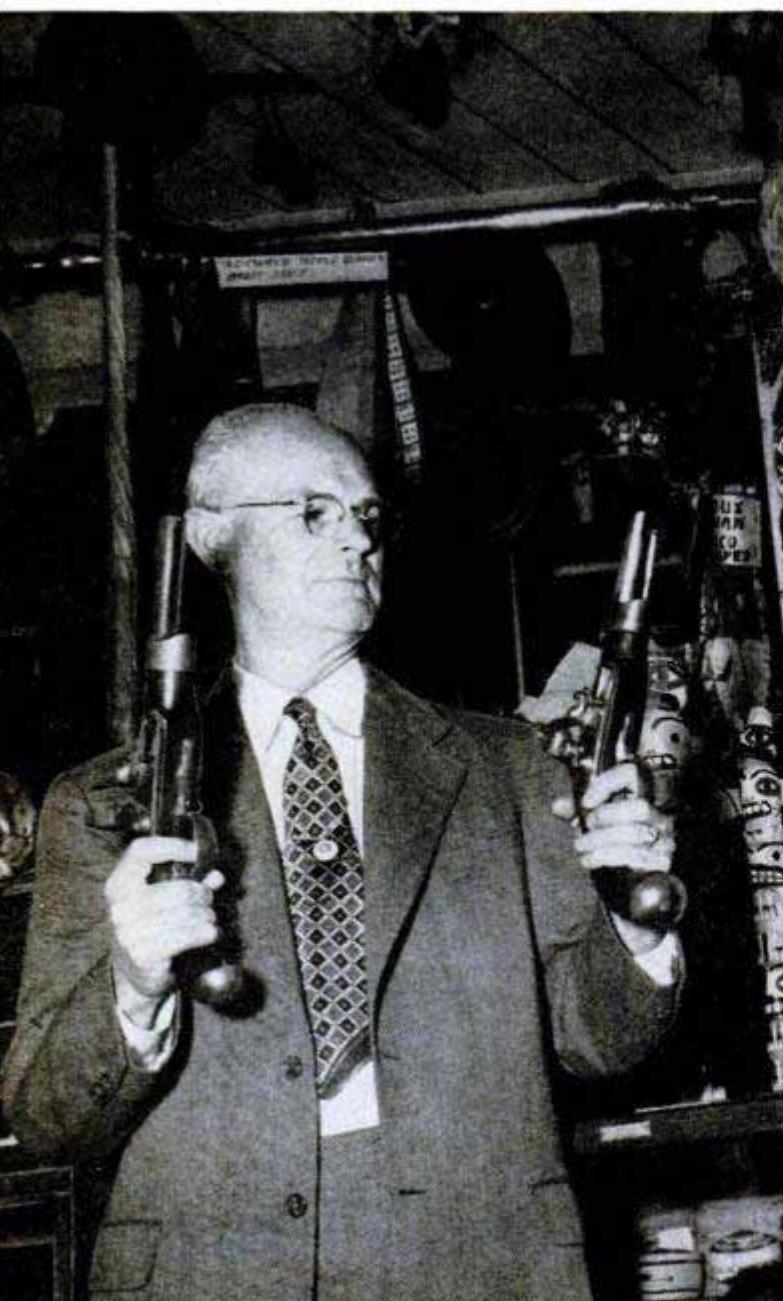
Just one showcase shows variety of items, from shrunken heads to intricate ship model carved by an Eskimo over period of seven years.  
↓ Sailors sell many curios to shop, then buy others before leaving





**Big walrus tusks impress a small customer. Want to find some Siwash Indian bread, an ox yoke, Eskimo mittens, a whale's jawbone, oriental carved jade? You'll find these and thousands of other items in the shop**

**Men packed real shootin' irons in days of these pistols. Weapons range from dueling pistols to blowguns**



of wonder to James the oddities some persons want to purchase. There's the matter of the whale jawbones. In 1908 the shop acquired two 21½-foot-long bones, which were placed in the form of an arch at the entrance of the shop and became its trademark. The bones had been found on Cape Race Light of Vancouver Island. Indians built a raft and sailed the bones to Seattle, where each received five dollars for the job.

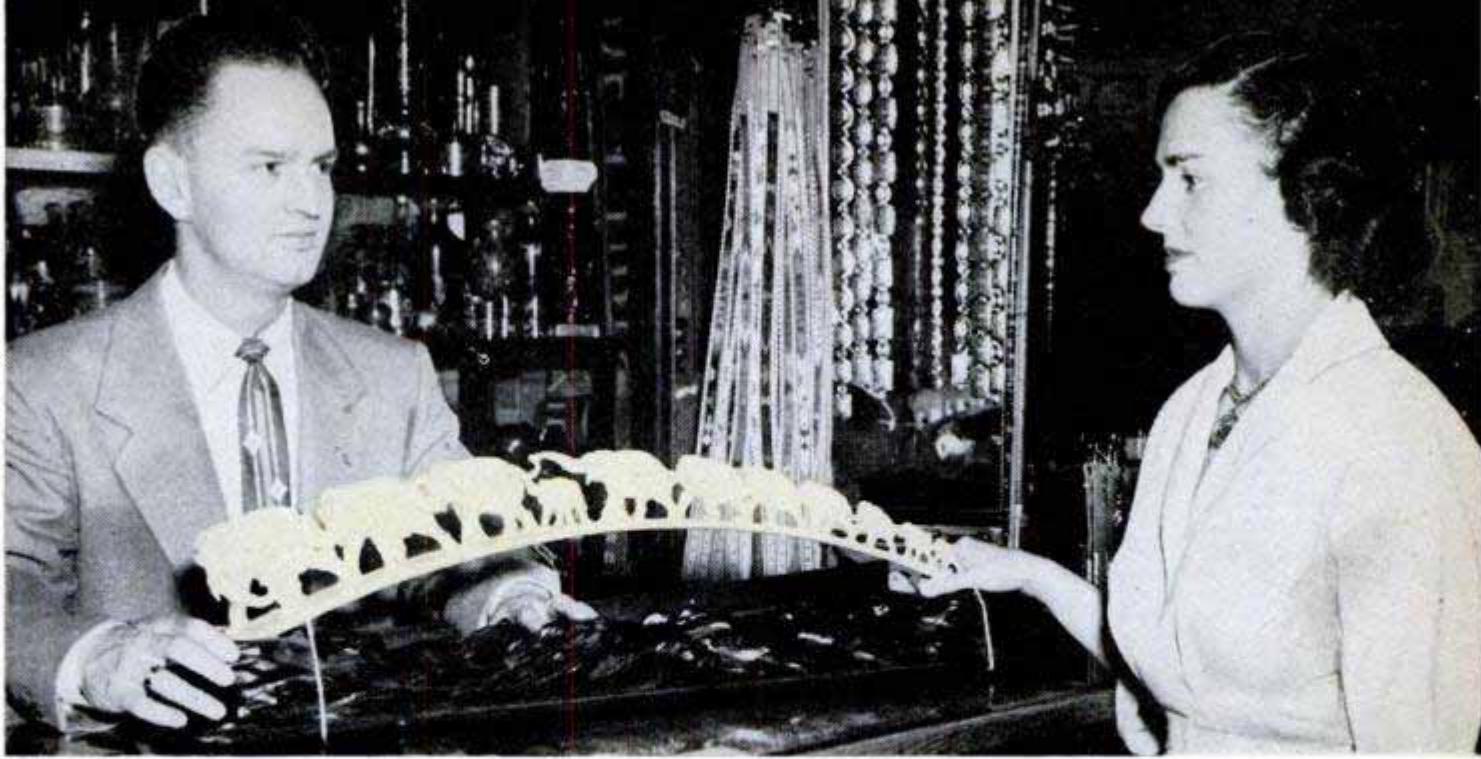
Some years ago a retired salt merchant of Pittsburgh who had taken a fancy to the huge bones wrote that he would like to buy them. For an entire morning James toyed with the idea of selling the trademark. In the afternoon a Swedish sailor walked into the shop.

"I wonder," he said, "if you would like to buy two fine whale jawbones—even bigger than you got? 22½ feet long, they are."

Somebody, explains James, is forever coming into the shop in the nick of time with something. Recently, however, the shop lost 50 percent of its trademark. A truck backed into one of the bones.

"We can set a price on most anything that is brought to the shop—just as a vegetable dealer can set a price on a basket of lettuce," says James. "But there are some things—keepsakes—on which we do not care to set a price, and discourage their sale to us. The sentiment attached to any object dies in our shop."

Typical of rejections was the item belonging to a neat little woman with tightly knotted gray hair. She carried a shawl-wrapped object into the shop one day. When the shawl was unfolded, there stood gleaming in polished radiance a Russian samovar, hand wrought with the delicate,



Among the shop's rarest treasures are these eleven parading elephants carved from a single piece of ivory

painstaking care of an ancient craftsman.

"My husband was captain of a four-master that sailed 'round the world many times," explained the woman with tears in her eyes. "The samovar was a gift of the Russian royal family. The Cap'n liked his tea, he did, and had the cabin boy serve it to him every day in the samovar. He's been dead 20 years now, and the samovar is all I have to remember him by. But now I need money for the grocer's bill. Will you buy the samovar?"

"Yes," said James, "but not today. You try one more day to raise the money you need some other way. If you fail, come back and I will give you a good price for the samovar—good, but still not adequate to cover the sentiment in that urn for you."

Almost lost in clutter is a huge beheading sword. Right, seaman sells Joe James an oriental ebony carving

The samovar went back into the shawl, and the owner left. She never returned.

The turnover in curios is surprisingly rapid. Every now and then, however, the shop picks up a slow seller. Fifty years ago it took in some Siwash Indian bread—hard and flat, made of seaweeds, kelp, wild berries and fish eggs. When Seattle had a bakers' strike, James offered in advertisements to come to the relief of breadless Seattlites with the ancient Siwash concoction. There were no takers.

In the not too distant past, Indians used to paddle in 40-foot dugout canoes to the shop from points on Puget Sound as far as 150 miles away. If the tide was in they would barter their wares directly from their

(Continued to page 274)





Picker, left, sits on top crossbar as he raises lower section. At right he lowers Pifa nuts to ground by rope

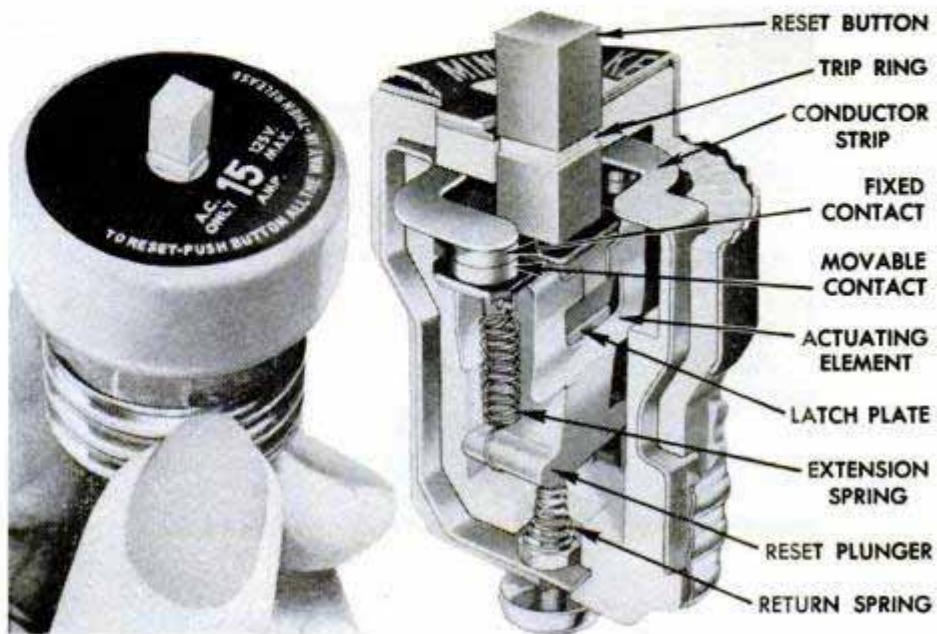
## Pifa Picker's Climbing Aid Affords Record Harvest

Harvesting the delicious nuts of Central America's Pifa palm is a tricky business. Two-inch-long thorns protrude from the tree trunk and climbing the tree can be downright unpleasant. One enterprising Panama native by-passed the customary practice of first burning the barklike outer layer from which the thorns protrude. He

built a homemade rig which allows him to pick record amounts. The device consists of two sets of two poles crossed near the front end. A permanent crossbar connects the widest span on each set. At the small end is a rope which passes around the tree. He moves the rig by alternately sitting on one crossbar and standing on the other.

## Circuit Breakers Replace Fuses in Standard Fuse Boxes

Miniature circuit breakers are now available which screw into standard fuse boxes. When a circuit becomes overloaded, the breaker will cut the contact to protect the wiring system. The homeowner can tell at a glance which circuit has been broken, clear the cause of the overload and then re-establish contact merely by pushing a small button. This eliminates the need to replace a fuse. The breaker, available in three ratings, protects 15, 20 and 30-ampere circuits.





## Detroit Listening Post

By Siler Freeman

**T**HE SPRING QUARTER—traditionally the time of year for buying new cars and new homes—brings the automotive industry to its first test of the “sports car” market. This year almost every manufacturer has a candidate in the field and sales of the custom convertibles will be watched closely. These production-line sports models are priced high enough to make the test selective but highly important to the big manufacturers.

Kaiser-Frazer promises to have its plastic sports car in production by midsummer. If it succeeds, it will have the first of this type actually offered for sale. This, of course, does not include the special jobs being done on a small scale on the West Coast.

Kaiser-Frazer will also pioneer in another field this month. It will offer the latest and most simple (according to its makers) type of power steering. The unit was developed by the Monroe Auto Equipment Company and is hydraulic. Monroe claims to have perfected a smaller, more compact and cheaper unit than any now in the field. It is a direct-acting, booster type that forms part of the steering-linkage system and is operated by a standard-type hydraulic pump mounted on the engine. The operating valve and power cylinder are one unit.

Ford is being watched on the power-steering development. It is the only one of the larger car companies which has not yet offered it. Chrysler was first and General Motors is providing all of its divisions, as well as Lincoln, with its version.

There is reason to believe it won't be long before Ford and Mercury do something in this line. Power steering is being touted as the most important engineering feat since four-wheel brakes. A high automotive official stated recently that in five years a car without it will be obsolete.

Hardtops continue to dominate the new-car market. Last year this body style took a 15 percent jump over 1951. In two years, it became third in the list of body styles. This year it may rise even higher. Pontiac, as an example, has scheduled more than 30 percent of its production in the hardtop.

In addition, it has shown a four-door version of the hardtop. This still has some way to go due to engineering difficulties.

The station wagon has also shown great strides in customer acceptance. Ford, which claims leadership in this field as well as in convertibles, has put 10 percent of its production on its two popular steel-bodied station wagons.

Extension of the V8-engine trend appears to be halted temporarily. When gossip of 1954 models starts later in the year, there will be hints. But right now, V8 engines have run their course. There may be two new ones in 1954 but the remainder will probably wait until the 1955 models come out.

The 1953 spring market waits to be tested. The manufacturers are very optimistic. They have been producing at the rate of better than 7,000,000 passenger cars a year. Their plans for this quarter show scheduling on the up side, rather than down. Dealers, especially in the independent lines, have not been so optimistic. Early reception of the 1953 cars has been good, but dealers have found something of a problem in easing out the trade-ins. Many a dealer remembers the prewar days when a car merchant went broke because his used-car lots became jammed.

Manufacturers are certain their attractive new wares will make a 5,500,000 to 6,000,000-car year possible if their dealers go back to pursuing the customer instead of vice versa. They see the record number of buyers in 1950 ripe now for 1953 deals.

It looks like the public will be the winner. The buyer appears to be ready to resume his prewar role, dictating what he wants and getting it at what he thinks a fair price. If he can't get it new, he will have a pretty good selection of used cars from which to pick, and used-car prices will probably assume a much better relationship to new-car prices than at any time since before the war.

The independents appear to be in for tough going. The Big Three's percentage of the market showed almost a three percent increase early this year over 1952. It will be quite a scramble for smaller companies.

## Giant Model Plane Flies 70 Miles Per Hour in Initial Tests



Believed to be the largest and most complete flying model airplane ever built, a  $\frac{1}{12}$ -scale Stratocruiser was airborne for more than three hours during its inaugural test in Tokyo. Four  $\frac{3}{4}$ -horsepower engines, a retractable tricycle landing gear and a completely reproduced cockpit are some of the craft's realistic features. There are cabin and navigation lights for night flying. Made primarily of a lightweight wood, the model has a 12-foot wingspan and weighs 45 pounds. It was built in eight months by members

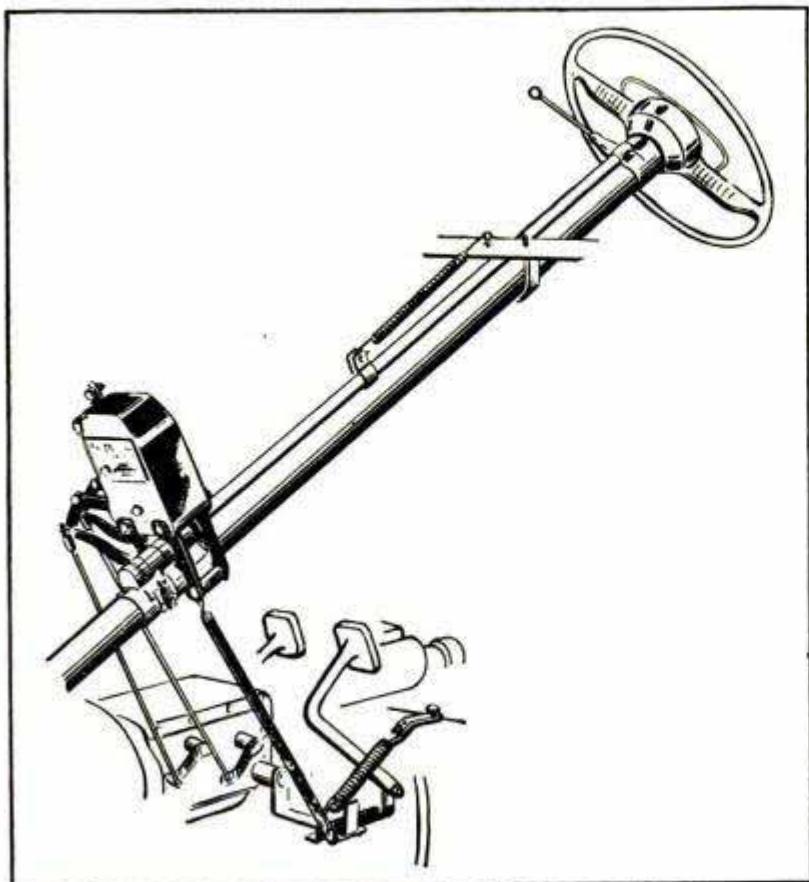
### Plastic Strengthens Plaster Casts

Stronger, lighter and thinner casts for broken limbs result from use of a new plastic compound which fortifies plaster-of-paris bandages. Particularly suited to the needs of children, the new casts will not crumble under the influence of water or body chemicals. Weight of a plastic-reinforced cast is said to be about one half that of a conventional cast.

of a Japanese model-airplane club. Attached to two 200-foot steel cables that extend out from a special anchor-control pylon, the remotely controlled model flies its circular course at a top speed of 70 miles per hour. A third steel cable operates the retractable landing gear.

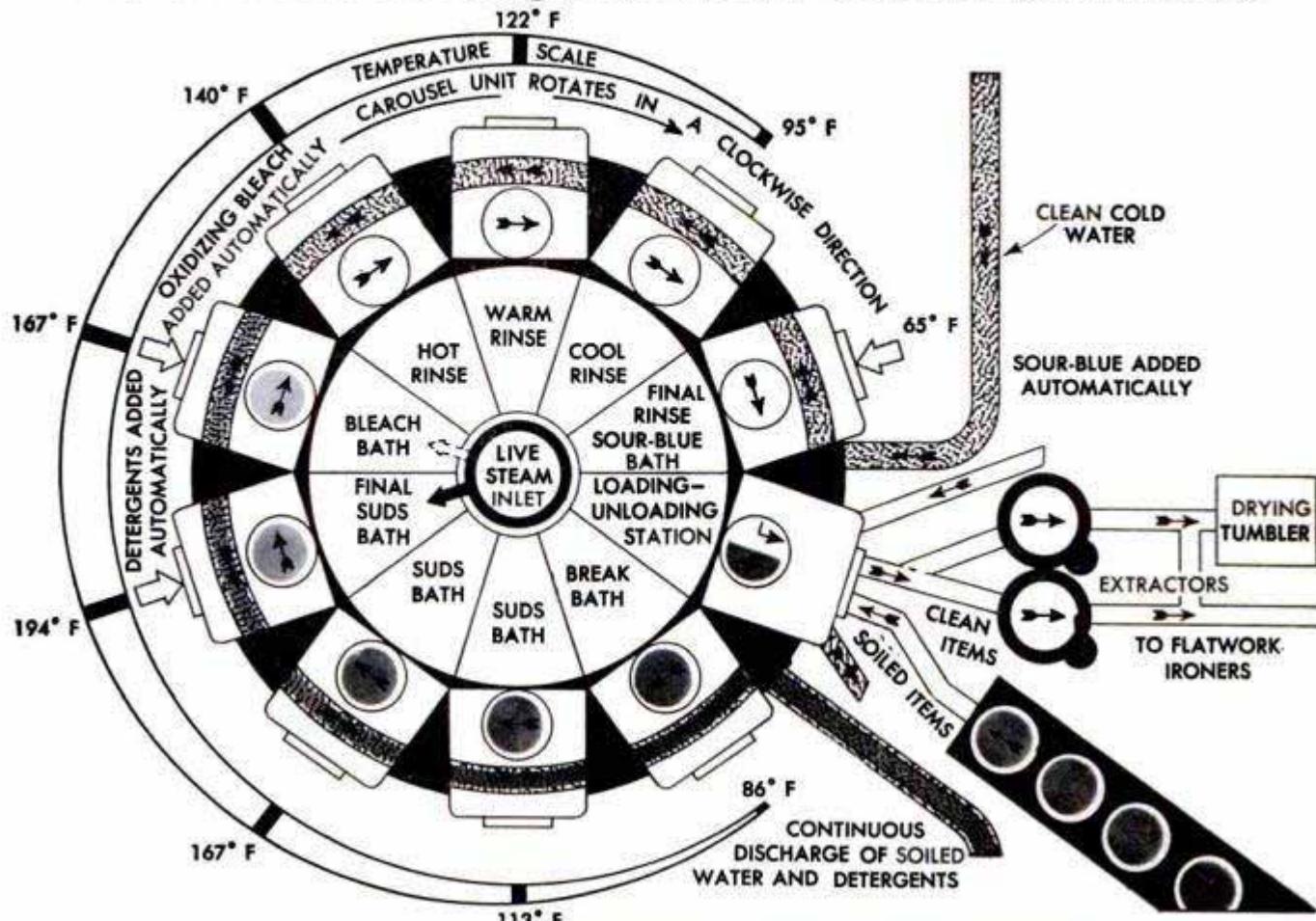
Winds of more than 1100 miles per hour, 65 to 100 miles in the sky, have been measured by radarlike instruments which calculate electronic activity.

### Easily Installed Accessory Makes Standard Transmission Automatic

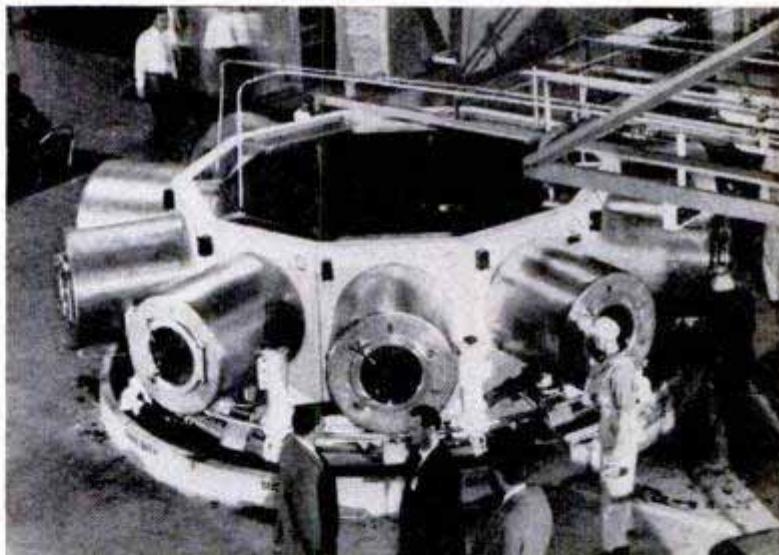


If you drive a Ford with a conventional hand-shift transmission, you can give it an automatic shift by installing a simple accessory on the lower end of the steering column. Installation takes about an hour. The unit is a small box that mounts under the hood and connects to the transmission by mechanical linkage. Inside the box are cams that synchronize the clutch-pedal movement with the shift operation. When you push down on the clutch pedal, a cam automatically shifts the transmission into the next gear. The only time you use the hand shift is to start out and to go into reverse or to go into low for a hard pull. The unit uses only the second and third gears. The manufacturer plans to make the device available to other cars in the future. It is claimed that the unit cuts shifting time in half and gasoline costs by 10 percent.

## Merry-Go-Round Washing Machine for Commercial Laundries



Taking its cue from the automatic washing machine, a carousel-like unit for commercial laundries mounts 10 individual washers. Arranged in a circle facing outwards, the open-end units are loaded at one fixed station and pass clockwise around the hub through nine phases of washing, bleaching, rinsing and bluing. By the time the operator has filled the ninth washer, the tenth washer is ready for unloading and a refill. The thrifty unit uses the same water for all nine phases. Flowing in a counter-clockwise direction, a tubful of cool rinse water is changed into hot rinse by injected steam. Bluing and bleach are added, and finally detergent. When it has completed its cycle at the first



washing station, the water, now hot, dirty and full of suds, flows down the drain. One attendant operates the German machine.

## Electronic Interpreters May Translate Foreign-Language Documents

It soon may be possible to translate foreign literature into English by means of an electronic machine, according to *Industrial and Engineering Chemistry*. The eye of the translator would be a scanner like those used in television cameras. The scanner, capable of distinguishing the printed words of a foreign language, would send electronic messages to a memory unit. The memory system, in which a vocabulary of

foreign words would be stored, would compare the impulses with its word storehouse. The translator would then convert the words to their English equivalents and feed them to an electric typewriter which would deliver the completed translation. The resulting word-for-word translation, though crude in form, would in most cases be understandable to one familiar with the subject matter.

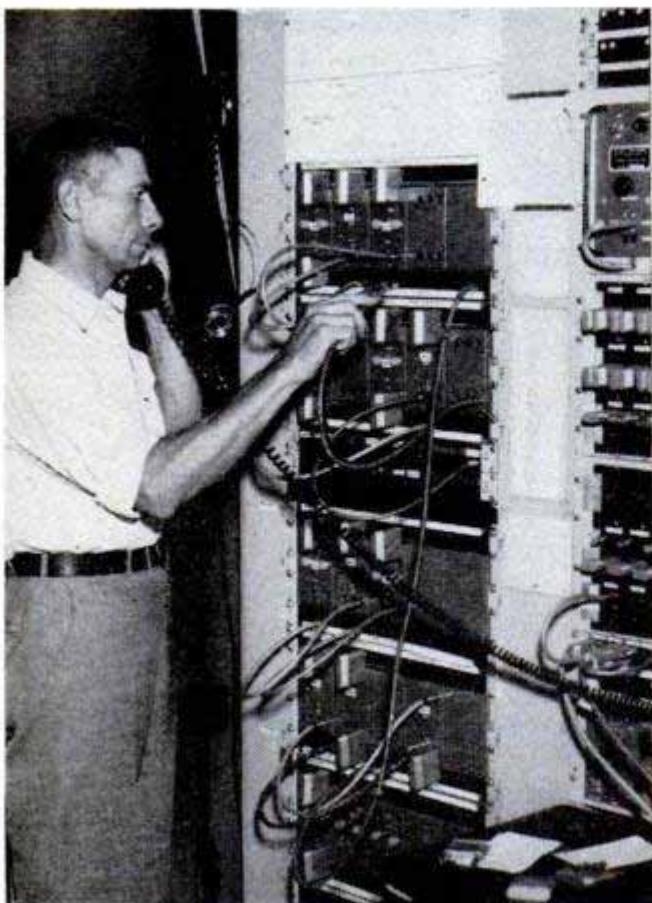


Microwave relay station on crest of 10,000-foot Mount Rose in Nevada is the highest in the United States

# Trouble Shooters for the

**By Jan and Bob Jensen**

At control center in Denver, Merle Newton talks with Omaha as program is switched to emergency channel



**HOLD IT!** There's something in the road!"

Ed Lupe leaned forward to peer out into the swirling blizzard, as Bud Lyons, his companion, skidded the green Jeep truck to a halt. It was a bitter March afternoon and they had been fighting man-size drifts ever since heading up Rist Canyon's road, which twists out of Fort Collins, Colo.

"Hey! Looks like a woman. She's fallen!"

Springing from their truck, the two Denver maintenance men from the American Telephone and Telegraph Company's long-lines department hurried to assist the prostrate figure. The woman stirred, looked up at her rescuers, and mumbled through blue lips, "Car stalled. Up the road," then she lost consciousness again.

"We'd better hurry," said Ed grimly.

Rushing her back down the five miles to the general store at Bellevue they lingered just long enough for the doctor to reassure them she'd pull through. Then, quickly shrugging off their roles as heroes, the two men stamped out into the storm and pointed their truck up the canyon again.

Their real job lay ahead of them, for there was trouble at the microwave-radio station atop Buckhorn Mountain. The transcontinental-television circuit was out, and their engineering genius had to put this invisible chain stretching from New York to



Newton checks filament voltage on amplifier panel

## TV Skyway

California back on its course, so that Jimmy Durante's schnozzle might continue eastward after skidding to a halt somewhere on the salt flats of Utah and Sid Caesar might bounce westward by evening. But the short delay of less than an hour had given the storm time to clog the canyon road.

"Looks like it's snowshoes for the rest of the trip," grunted Ed Lupe.

"Yeah," agreed Bud. "Wish I had a nickel for every time I've tracked up Buckhorn on these overgrown tennis rackets."

An early dusk had enclosed the whipped-cream wilderness by the time they finally strode around Buckhorn's last curve and out on the broad knoll where all that was visible of the relay station were patches of its black roof sticking out of the drifts.

It did not take long for the two microwave maintenance men to replace the faulty tube causing the break in the relay system, and by evening, television was once again skimming across the continent. Then, rolling out the emergency beds, and opening a can of beans from the supply cupboard, Ed Lupe and Bud Lyons turned in.

If tired muscles kept them in a brief state of insomnia, instead of counting sheep, they could have ticked off the 107 other relay stations spaced every 30 miles or so across

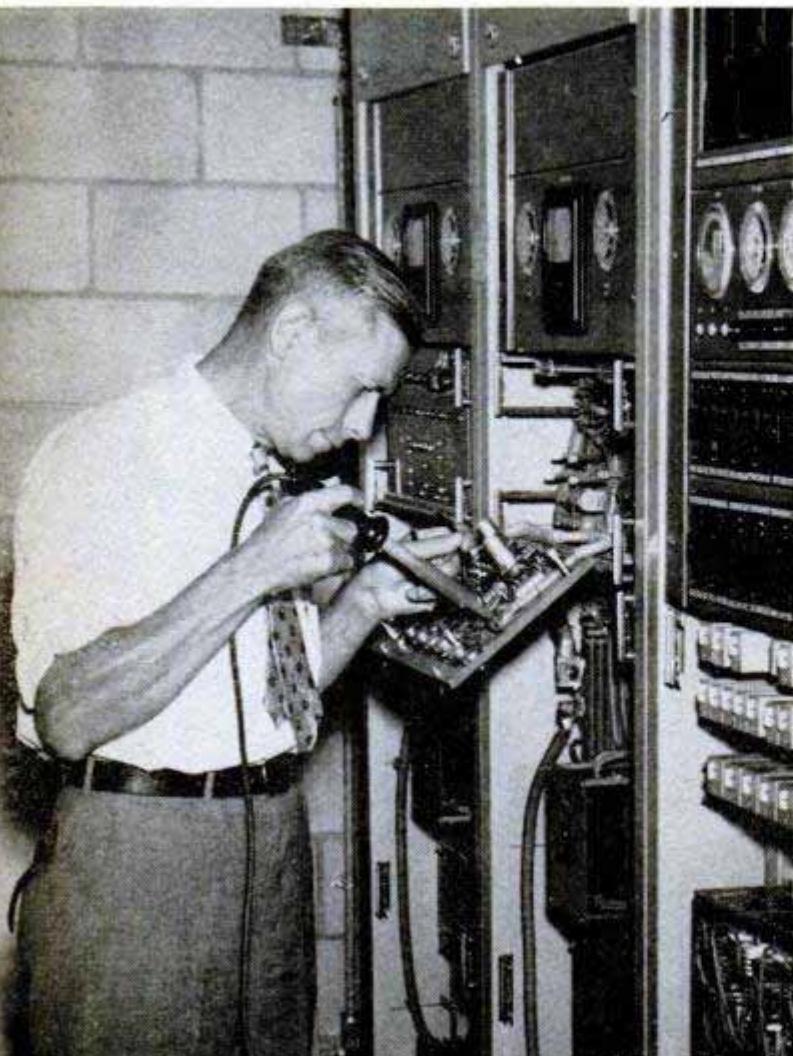
Aerial tramway (right) carries men and equipment the last thousand feet up the slope of Mount Rose





Huge electronic lenses of Buckhorn tower connect to microwave pipes that carry impulses to and from station

Maintenance engineer Merle Newton makes a routine repair on the 12-volt rectifier-control equipment at the Buckhorn Mountain relay station in Colorado



the three thousand miles from coast to coast. They might concentrate on the 415-foot tower at Des Moines, the tallest along the route, or a short, stubby rascal like the 2½-foot platform built to counteract the reflections from the Salt Lake flats.

A chain of sharply focused radio beams, using frequencies between 3700 and 4200 megacycles, or a wave length of approximately three inches, is used to transmit television and telephone messages for long distances. Four billion of these tiny twentieth-century "carrier pigeons" pass a given point every second, flashing from Times Square to the Golden Gate. Often following the pioneers' trail, they dip lightning wings along the way—New York, Philadelphia, Pittsburgh, Chicago, Omaha, Denver, crossing the continental divide at Creston, Wyo., 7182 feet above sea level, over Pratts Pass outside of Salt Lake City, hurdling the high Sierras at Mount Rose, Nev., finally swooping into San Francisco—squeezing a nation into a rib-crushing bear hug. The stations are not placed in a straight line, but run zigzag to prevent the signal from overshooting the tower and bouncing off antennas farther along.

As the microwave touches each relay point, it's given a booster shot by the powerful receiving and amplifying equipment contained therein, concentrated into beams by the use of special electronic lenses, and aimed accurately from one antenna atop the tower to the next station. If it were possible to catch this intangible substance in a slow-speed Walt Disney animation at one such

stop, a radio wave about the length of a ten-penny nail would slide from the antenna down the hollow-tube wave guides, whiz through the amplifier for its rejuvenation and flit nimbly back up the opposite side of the tower to be catapulted into space once again. Less than one watt of radio-frequency power is required to bridge the distance between relay points.

This is the story of the men behind the Bell System's \$40,000,000 project—men, like Lupe and Lyons, who service a sky highway and keep alert fingers on the thrilling pulse which now beats steadily across America.

"I never saw the ground once the whole time we were building the tower at Blue Mountain, Pa.," a lean foreman relates. "The clouds just closed in on us right from the beginning, and it felt like Saint Peter was huffing down your neck, working up there on those girders, not being able to see the fellow next to you, just hearing the clank of hammers against steel."

"Ever try lifting heavy antennas into place in a 60-mile Wyoming gale?" growled a sunburned construction man. "They whipped like sheets on a clothesline."

Building the Mount Rose, Nev., station, which tips the route at its highest point, was the headache spelled with a capital migraine. Just getting to the top of its two-mile-high, snow-packed summit in freezing March weather took a bit of doing. "The first mile and a half in elevation," one of



Television-maintenance men complete last lap of journey by snowshoe to microwave relay station at Cisco Butte, Calif.

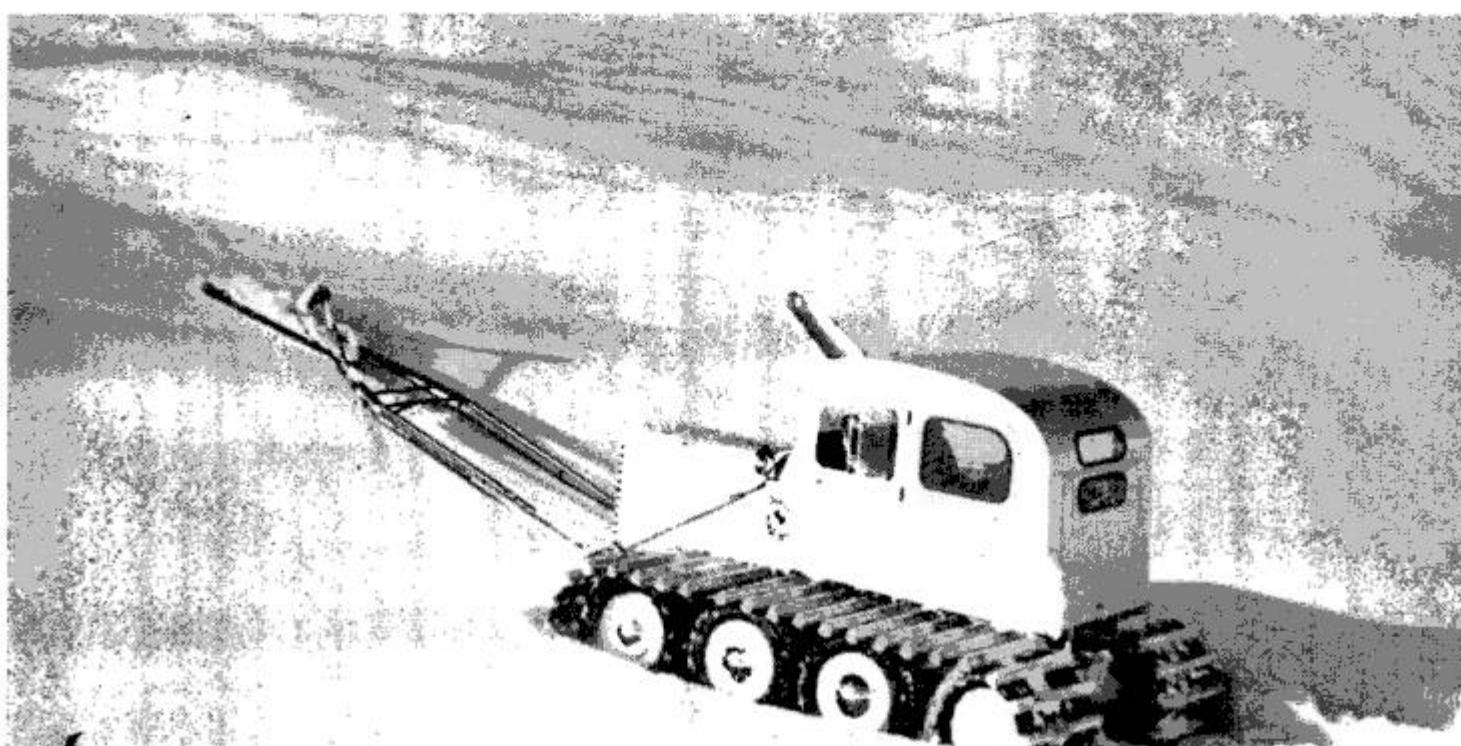
the crew said, "we piled our equipment into a tractorlike truck called a Sno-Cat. The going was fairly simple for a while, but even it balked at the last thousand feet."

"Yeah," agreed another, "then we had to transfer ourselves and gear to a flat stoneboat, hook a rope around a special ski tow the telephone company installed and, hanging on for dear life, jerk to the top by inches."

Then there were the tin-hatted young men who rode the hoist up the framework

(Continued to page 240)

"Sno-Shu" starts climb. Runner prevents front end from digging in, helps tractor over steep and uneven surfaces



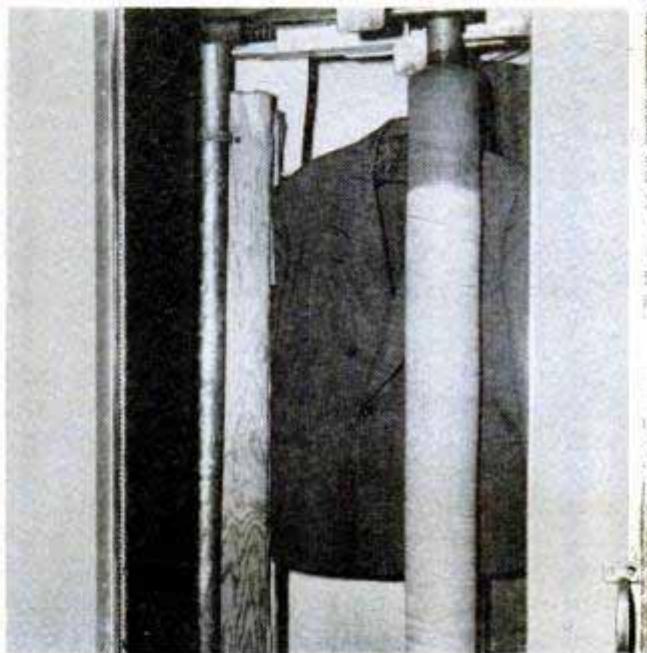
# Automatic Dry Cleaner

SIXTY GARMENTS an hour are processed by a compact automatic unit which dry cleans and presses in 40 minutes. Larger than the original test model, the manufactured article will be about 20 feet long, 8 feet high and 7 feet deep. Along the top of a recessed section in front runs a constantly moving conveyor line. The soiled garment is treated for spots, placed on an ordinary wire hanger and suspended from the conveyor. It passes first through closure rollers which keep heat and spray inside the machine. Vertical perforated steam pipes soften the garment with jets of

steam and an overhead drenching outlet drops the initial cleaning solution. It proceeds around a corner to the first cleaning squeezer, padded boards which squeeze gently back and forth as the garment is soaked with soap from an overhead source. A dry squeezer is next. Then follows a jet spray of clear solvent, both from vertical perforated pipes and an overhead outlet; a final dry squeezing, closure rollers, a long trip through the heat chamber and the garment finally emerges clean and dry from the closure rollers at the other end. Often, no additional pressing is needed.

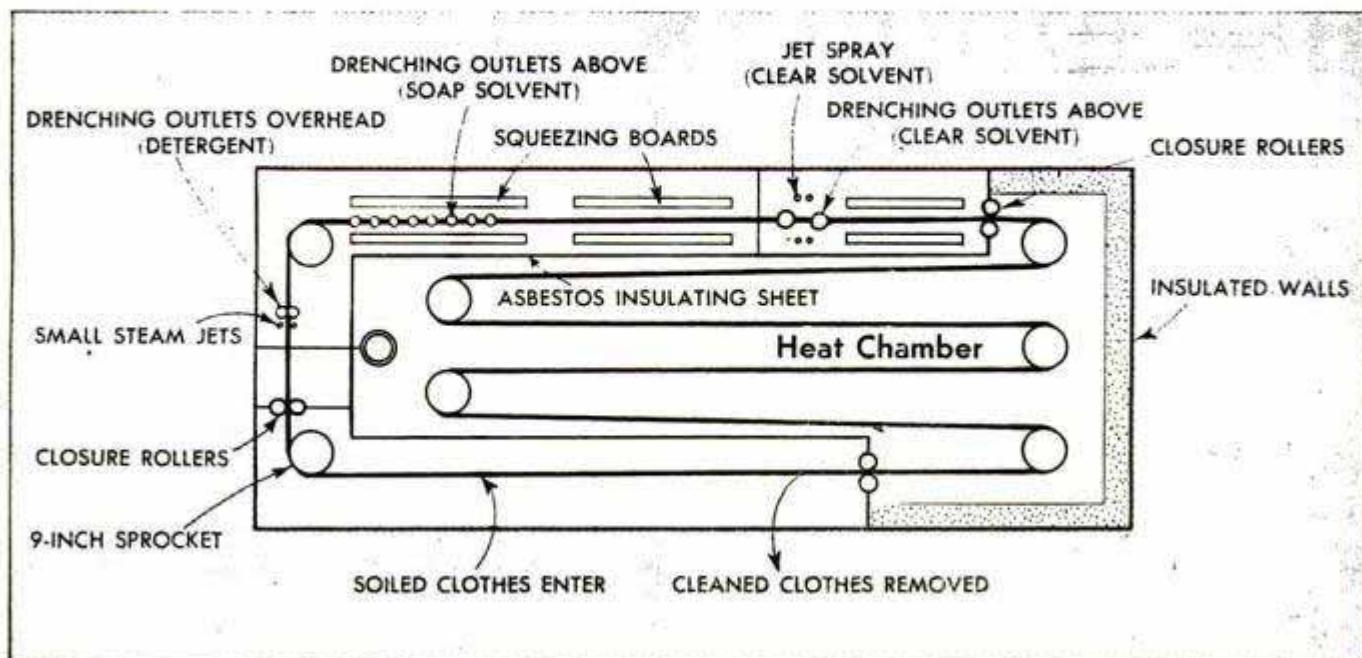


Dress is placed on conveyor as coat disappears between closure rollers which keep heat and spray inside



Cleaned coat emerges from squeezer boards at left and passes into heat chamber. Door is normally closed

Constantly moving conveyor takes clothes through complete cleaning process. Garments never leave hangers



## Thin-Wall Refrigerator of the Future Saves Kitchen Space



Forming part of the wall between kitchen and dining room, an experimental General Electric refrigerator is said to take up half the space occupied by conventional models. Ultrathin insulation 10 times as efficient as standard packing is the main reason for its compactness; wall thickness is one half inch instead of three inches. The refrigerator actually has two fronts, and can be opened as easily from the dining-room area as from the kitchen. Doors of the experimental cooler are magnetically sealed, and are opened by means of finger grips at the base.

## Study Douglas-Fir Beetles to Prevent Future Tree Damage

Tree-killing Douglas-fir beetles are being trapped on an Oregon tree farm in an effort to study the life and breeding habits of the minute insects. The tiny bugs have wreaked wholesale damage on the tall timber of the Northwest; in one 205,000-acre area, they destroyed more than 300,000,000 board feet in one year. Made of copper screening, large funnels and pint fruit jars, the traps catch mature beetles as they emerge from the bark. The beetle, smaller than a match head, bores into a tree to deposit eggs beneath the bark. The eggs hatch into larvae that mine out the layer of wood through which the tree pumps moisture and nutrients from the soil. After maturing, they emerge from the bark to attack other timber. So far, the only solution is to harvest the infected trees.



## Thermostat Regulates Temperature in Plant Incubator



Artificial heat supplements solar heat in a combination hot bed—cold frame for starting small plants. Temperature of the air is thermostatically controlled and ventilation is automatic. A valve, operated from without, regulates a fine-spray irrigation. Eight small light bulbs provide heat when the sun's rays are lacking. The removable metal center sash rests on a plywood base, is chain-secured to prevent damage from wind or storm. The unit is six feet wide by three feet deep.

AVERAGE  
19.5 M.P.G.

POPULAR MECHANICS OWNERS POLL  
CONDUCTED BY FLOYD CLYMER

1. I own a 1952 Ford: V-8  6-cylinder   
2. I use regular gasoline  Premium (high test) gasoline   
3. Average gasoline mileage in city: 17 m.p.g.; in country: 23 m.p.g. with overdrive  
4. Oil consumption: One quart every 3,000 miles.  
5. My Ford is equipped with: Conventional 3-speed transmission  Conventional transmission with overdrive   
Ford-O-Matic Drive   
6. If you have Ford-O-Matic Drive, what is your opinion of it? Good  Adequate  Poor   
Excellent

What troubles have you had with your Ford-O-Matic transmission?

7. Roadability at high speeds: Excellent  Good  Unsatisfactory   
8. Maneuverability in traffic: Excellent  Good  Unsatisfactory   
9. Acceleration: Excellent  Good  Adequate  Poor   
10. What is the most satisfactory cruising speed of your Ford? 20 m.p.h. in overdrive  
11. My main reasons for buying a Ford: good looks, economy

12. If you own the V-8 engine, do you like its side valves - or would you prefer over-head valves, as in the Ford 6-cylinder engine? Side valves  Overhead

13. Rate these points:

Visibility, forward:  
Visibility, rear:  
Riding qualities:  
Horsepower output:  
Exterior body styling:  
Interior body styling:  
Suspended clutch & brake pedal:

Like   
Like   
Like   
Like   
Like   
Like

Acceptable   
Acceptable   
Acceptable   
Acceptable   
Acceptable   
Acceptable

Dislike   
Dislike   
Dislike   
Dislike   
Dislike   
Dislike

14. Specifically, what are your complaints on the Ford? too many rattles  
tappets need adjusting too often

15. Have you ever owned a Ford before? Yes  No  How many? \_\_\_\_\_  
16. Would you buy another Ford? Yes  Possibly  No   
17. How is your dealer service? Excellent  Good  Average  Poor   
18. An overall rating of your Ford: Excellent  Good  Average  Poor   
19. What specific improvements do you want in your next car? Good  Average  Poor

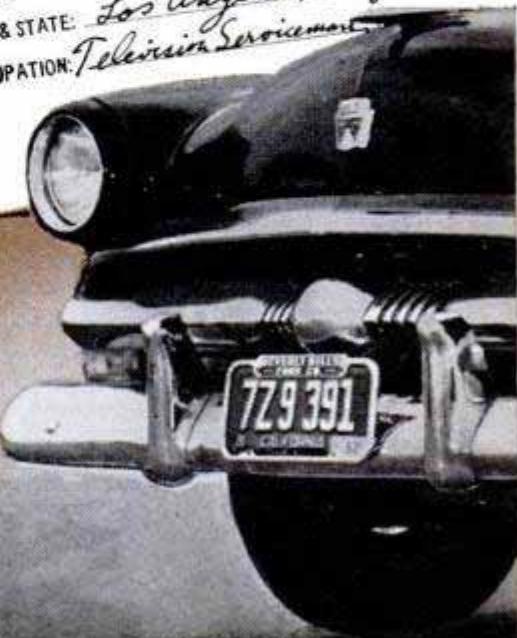
a little more horsepower, a little tighter body  
Write additional comments on reverse side. This questionnaire will be tabulated fairly and your name will be held in strict confidence  
Thank you.

Mail promptly to:

FLOYD CLYMER  
Popular Mechanics Owners Poll  
1268 So. Alvarado St.  
Los Angeles 6, California

YOUR NAME: \_\_\_\_\_  
STREET: \_\_\_\_\_  
CITY & STATE: Los Angeles, Calif  
OCCUPATION: Television Serviceman

52% RATE CAR  
EXCELLENT IN POLL



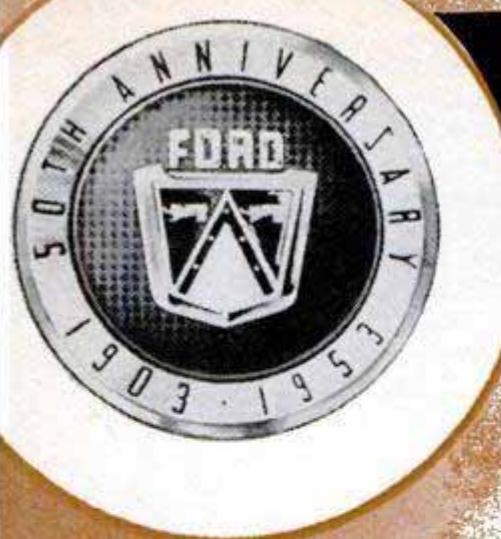
73% USE  
REGULAR

57%  
EXCELLENT  
38% GOOD

BIGGEST  
REASON FOR  
BUYING  
POLL SHOWS

97.5% LIKE THIS

MOST FREQUENT  
COMPLAINT



# The OWNERS REPORT on the FORD SIX

***The true test of a car begins when the owner takes the wheel. Popular Mechanics sent questionnaires to 1000 Ford owners. Here is what they have to say***

**By Floyd Clymer**

THE FACT THAT an extremely high number (78 percent) of the owners reporting in our Ford survey had owned one or more Fords previously is a testimonial to the motoring public's persistent faith in Ford throughout the years.

In answering our questionnaires this year, Ford owners as usual pull no punches. They tell what they like and what they don't like. The reasons why a large percentage of owners stay in the Ford family vary from year to year, but this survey was typical. Mechanical features and styling show up as the principal reasons for buying Fords, but a large number gave as their reason for satisfaction this point, as voiced by a Salem, Ore., truck driver:

"The Ford seems to be such an easy car to get parts for. All towns, no matter how small, usually have the necessary repair parts for radiators, heads, frames, fans, starters, generators and steering systems... In case of an accident anywhere, you get going quicker and for less."

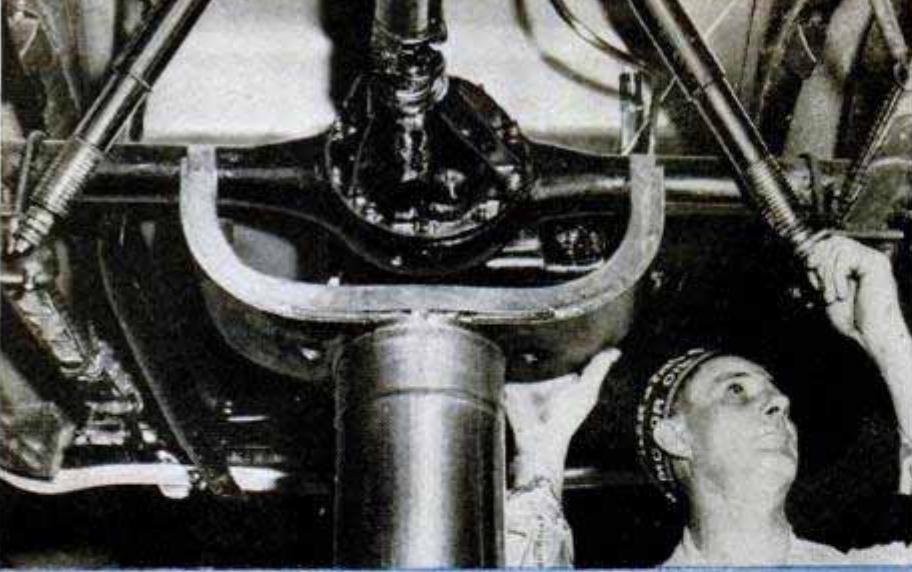
A large percentage increase of Ford Six owners was shown in the current poll. However, owner satisfaction was more evident among owners of the V8 than the Six: Seven percent of the Six owners said they would not buy it next time, but only a tiny one percent of V8 owners indicated it would not be their next buy.

These drivers have been wheeling their cars around for thousands of miles and their comments are from personal experience. Most have owned their cars for 6 to 10 months, because change-over time in Detroit made it necessary for us to poll owners of 1952 Fords. We made the Ford Six the principal subject of this survey, but to check the improvements in 1953 models I made my own test in the '53 Ford Six. The differences between the two years are minor and have little effect on anything except riding comfort.

Fordomatic proved another very strong feature. Of owners who had this transmission, 60.5 percent reported it excellent, 37

Owners gave styling as principal reason for buying a Ford Six. Economy ran third in poll. Clymer tested this four-door model





**Big news in the 1953 Ford is improved riding qualities. Rear-end stability is increased by "sea leg" mounting of shocks**

percent good, 2.5 percent average and none poor. That's a remarkable owner tribute to any automatic transmission.

Our question: "Specifically, what do you dislike about the car?" brought the usual variety of answers. The predominant complaint for Ford was body rattles.

Excessive vibration was observed by a Pitman, N.J., convertible owner, who said: "The whole car shakes so much that one gets a constantly blurred picture when looking into the rear-view mirror."

Other complaints include:

"The Ford Six OHV is under-powered for Fordomatic. The transmission is very smooth, but should have four speeds forward. I also object to the slow down-shift response for passing purposes or on hills." — Pekin, Ill., printer.

"Doesn't have the snap of previous models." — Long Beach, Calif., factory worker.

"It does not have self-centering action, but wanders slightly from side to side." — Los Angeles painter.

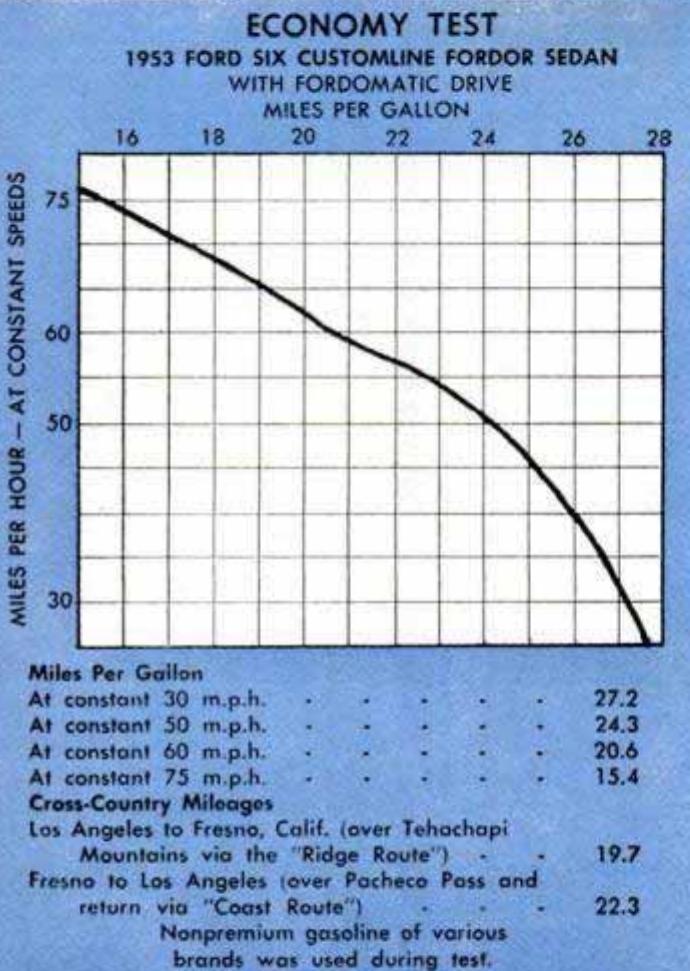
"Dealers load new Fords with every accessory imaginable and then tell the public that the cars were equipped at the factory while, in most cases, the dealers themselves load them." — Baltimore, Md., radar technician. (A common complaint in all our surveys on all makes.)

"Chrome is very poor. I would rather have stainless steel." — Ashland, Ky., chemical-plant foreman. (You'll be getting some this year.)

Owners of all makes of cars think they should get more gasoline mileage and Ford owners hew to the line in this respect. Ford Six owners reported 19.5 miles per gallon in the country and 15.9 miles per gallon in the city.

"I'd like better mileage, but all automatic drives are 'gas hogs.' Fordomatic is by far the best

**Arrow points to new rubber bumper, part of the redesigned suspension system that Clymer says has cut road shock greatly**



## Percentages From PM Owners Poll

	V8	Six
Owners of V8 models.....	57%	—
6-cylinder models.....	—	43%
Owners using regular gasoline.....	50%	73%
premium gas.....	50%	27%
Average gasoline mileage		
in country..... (m.p.g.)	18.5	19.5
in city..... (m.p.g.)	15.3	15.9
(Overdrive-equipped models averaged 3.2 m.p.g. higher than cars with conventional transmissions.)		
Average mileage		
for adding one quart oil.....	1630	1197
for change of oil.....	1880	1756
Owners having		
conventional transmission.....	44%	52%
conventional with overdrive.....	18%	28%
Fordomatic drive.....	38%	20%
Owners' rating of Fordomatic drive		
excellent.....	68%	53%
good.....	32%	42%
average.....	0	5%
poor.....	0	0
Roadability excellent.....	56%	57%
good.....	40%	38%
unsatisfactory.....	4%	5%
Maneuverability excellent.....	78%	75%
good.....	22%	25%
unsatisfactory.....	0	0
Acceleration excellent.....	58%	52%
good.....	35%	35%
adequate.....	7%	11%
poor.....	0	2%
Average cruising speed reported (m.p.h.)	61	56
Previous owners of Ford cars.....	86%	70%
Previous owners of five or more Fords.....	17%	18%
Owners who will buy another Ford.....	70%	68%
might buy another Ford.....	29%	25%
will not buy another Ford.....	1%	7%
Owners rating dealer service excellent.....	28%	33%
good.....	34%	30%
average.....	27%	24%
poor.....	11%	13%

### OWNERS' OVER-ALL RATING OF CAR

Excellent .....	50%	52%
Good .....	41%	34%
Average .....	8%	12%
Poor .....	1%	2%

### CHIEF PURCHASE REASONS

(in order of popularity)

	V8	Six
Mechanical features .....	1	4
Styling features .....	2	1
Purchase conditions .....	3	2
Previous Ford ownership .....	4	5
Economy of operation .....	5	3
Driving ease .....	6	6

### OWNER COMMENTS ON PARTICULAR FEATURES

	Like	Acceptable	Dislike
Visibility, forward .....	97.5%	1.5%	1.0%
Visibility, rear .....	95.5%	4.0%	.5%
Suspended foot pedals .....	93.0%	5.0%	2.0%
Exterior body styling .....	93.0%	7.0%	0
Interior body styling .....	81.0%	18.0%	1.0%
Riding qualities .....	68.0%	28.5%	3.5%

### MOST FREQUENT COMPLAINTS:

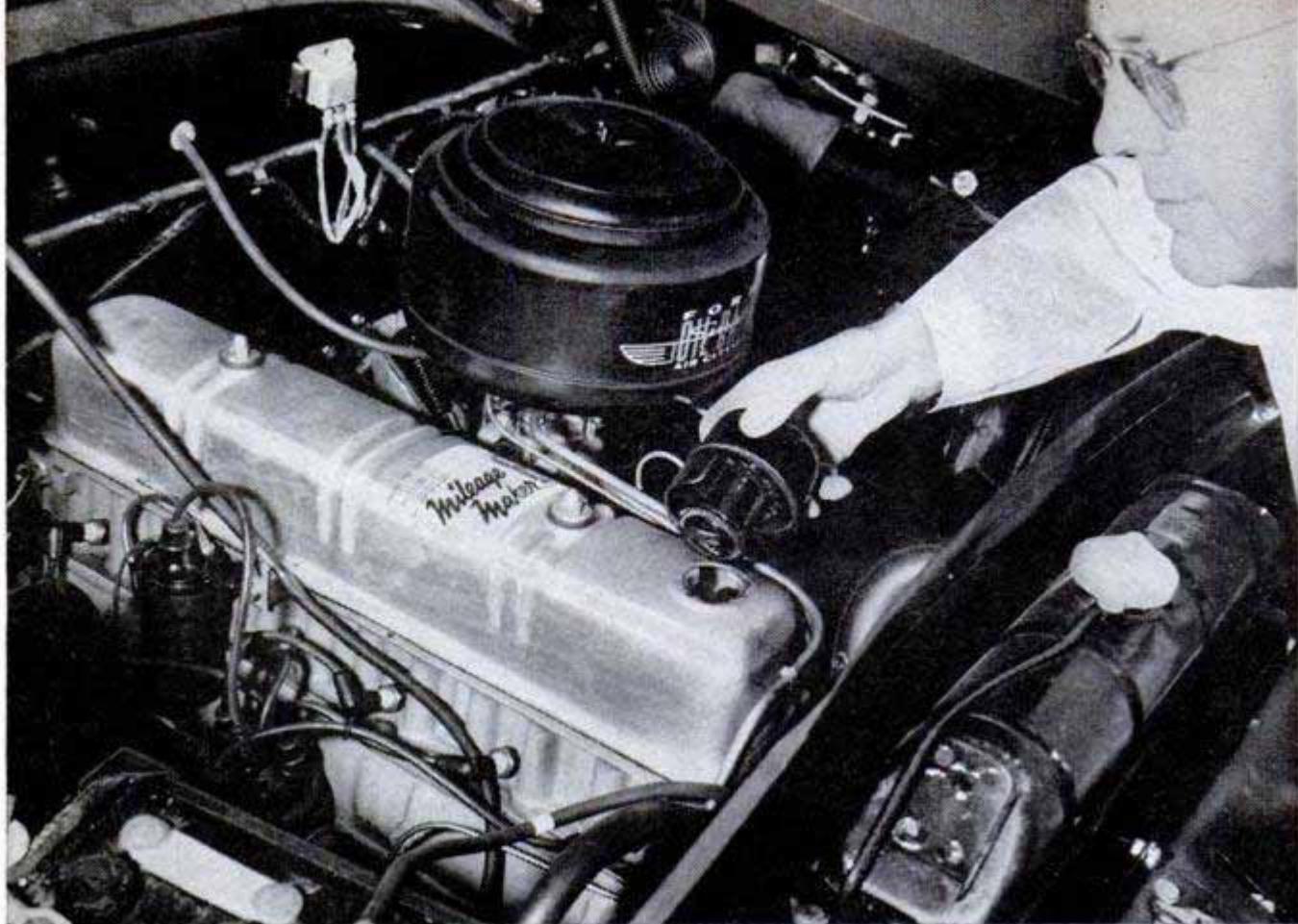
	Order of Frequency	V8	Six
Rattles, body squeaks .....	1	1	
Low gasoline mileage .....	2	3	
Mechanical difficulties .....	3	2	
Engine noisy .....	4	—	
Rear of car too light .....	5	7	
Low power .....	6	6	
Poor paint or chrome .....	7	5	
Steering or handling qualities .....	—	4	

### IMPROVEMENTS DESIRED IN NEXT NEW CAR:

	Order of frequency	V8	Six
Better body workmanship .....	1	1	
Increased gasoline mileage .....	2	3	
Increased power and acceleration .....	3	5	
Overhead valves .....	4	—	
Automatic transmission .....	5	—	
Improved mechanical items .....	6	4	
Improved riding qualities .....	7	7	
More stable steering and handling .....	—	2	
Better paint and chrome .....	—	6	

Clymer agrees with Ford owners that roadability is excellent. Some owners did complain of steering qualities





**Oil-filler cap on the overhead-valve six is convenient. Average owner adds a quart of oil each 1197 miles**

automatic transmission. It is smoother and has less jerks because it always drives through the torque converter."—Los Angeles doctor.

Here are some frequently reported reasons for buying a Ford:

"They have always been as good or better than any other car in the low-price field."—Canton, Ohio, foreman.

"I received good all-around economical service from my '51 Ford, and improvements were available in the '52 model."—Chanute, Kans., insurance salesman.

"It will stand sustained high-speed driving better than the average low-price car."—Baker, Ore., salesman.

"It gives me everything an expensive car would and is not hard to move every two years. Also, I like the styling better than that of any other car."—Mansfield, Ohio, exterminator.

"I travel 40,000 miles a year, and I find Ford needing the least amount of repair. When repair is needed, the cost usually is more moderate than for other cars."—Canton, Ohio, traveling salesman.

"What specific improvements would you like to see in your next car?" is a question we never fail to ask. Some of the answers were:

A Baltimore, Md., advertising-production man and others want a larger glove compartment.

A Lynchburg, Va., advertising manager wants "a body without a hump in the middle."

An Ohio truck driver, explaining that he weighs 265 pounds, wants stronger front seats. "I like a two-door model, but had to get four doors to get stronger seats."

The temperature gauge should be calibrated instead of reading "cold" or "hot," and the gasoline gauge should be in gallons, not reading "empty" and "full," a New London, Conn., research mechanic suggested. (I agree.)

A Birmingham, Ala., chiropractor would like to see an inside release for the trunk as well as for the hood. And it would add little to the total cost to provide left-foot

(Continued to page 262)

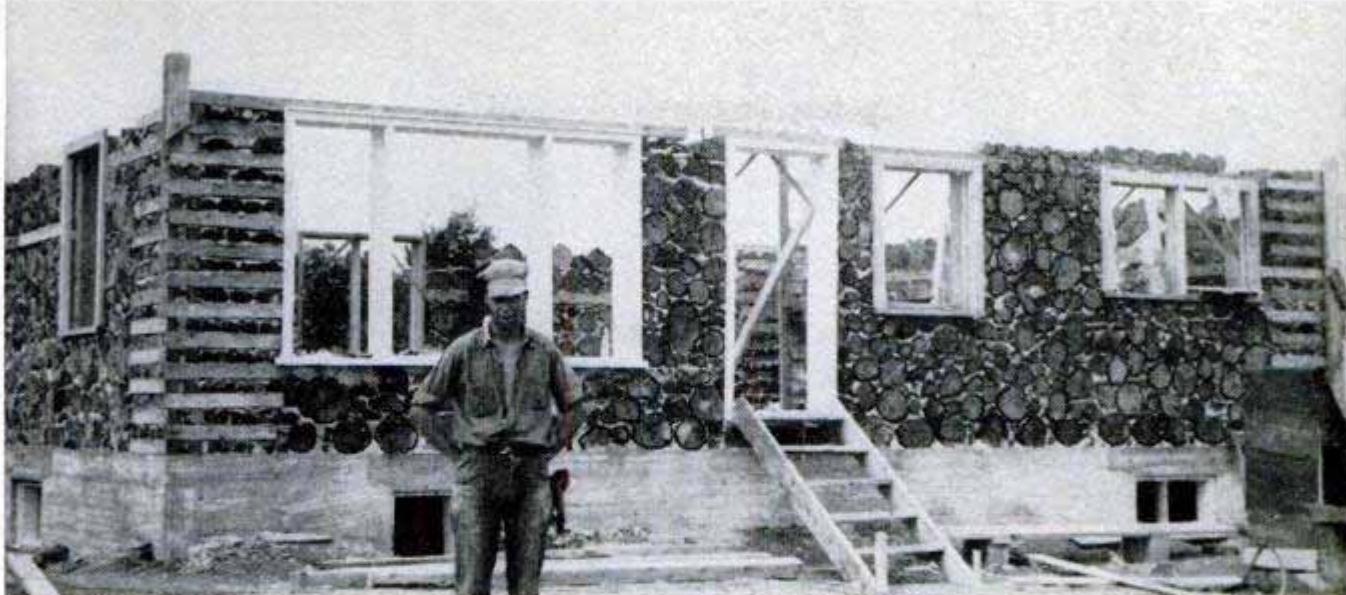
#### ACCELERATION TEST

1953 FORD SIX FORDOR CUSTOMLINE SEDAN  
WITH FORDOMATIC TRANSMISSION

1/4 mile from zero .....	21 sec.—Low only
1/2 mile from zero .....	32.5 sec.—Drive range only
0 to 30 m.p.h.....	5 sec.—Low only
0 to 60 m.p.h.....	16.8 sec.—Drive range only 16.2 sec.—Low and Drive

(In tests using both Low and Drive ranges,  
shift was made at about 30 m.p.h.)

Top speed (by speedometer) ..... 90.92 m.p.h.  
Actual top speed about 6% less (speedometer variation)



## Modern Cabin Uses Short Lengths of Logs Mortared Like Stone

With a new approach to a frontier-age type of housing, John Mascoe of Ottawa, Ont., Can., is building a log cabin in which the logs face the "wrong way." Instead of laying logs from corner to corner to form the wall, he cuts them in lengths of 10

inches and mortars them in as if they were cinder blocks or stones. The sawed ends which form the wall surface will be finished later with several coatings of varnish. Mascoe believes that the finished product will last indefinitely.

## "Poor Man's Corn" Proves Excellent Value in Vegetable Diets

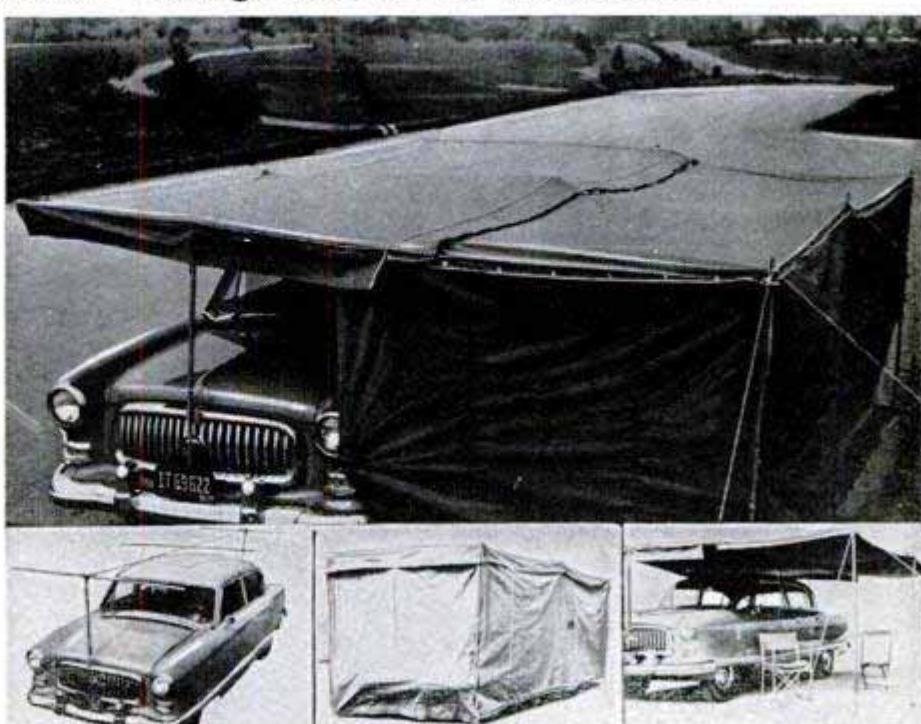
Teosinte, a plant native to Mexico and Central America, has been discovered to be an excellent aid to good nutrition, especially for persons forced to live on vegetable and cereal diets. The plant is the closest relative of corn and is known as "poor man's corn." Its kernels are smaller than corn kernels and have a hard, inedi-

ble hull. Scientists of Iowa State College, working at the Guatemala Research Center, have discovered that teosinte contains more total protein than corn, and more than twice as much of the amino acid, methionine, as corn. Lack of methionine is what makes a predominantly vegetable diet such poor nourishment.

## Combined Tent and Portable Garage Mounts on Automobile

Supported by steel pipes mounted directly on the car, a tarpaulin garage also acts as a sleeping tent or sunshade. Just by snapping side curtains together, protection against snow, rain or cold is afforded. Side posts allow conversion to a sunshade for picnics and daytime camping; addition of side curtains to the sunshade turn it into a roomy tent for sportsmen.

Twenty-five million acres of American soil are now irrigated by canals that would circuit the globe 5½ times.

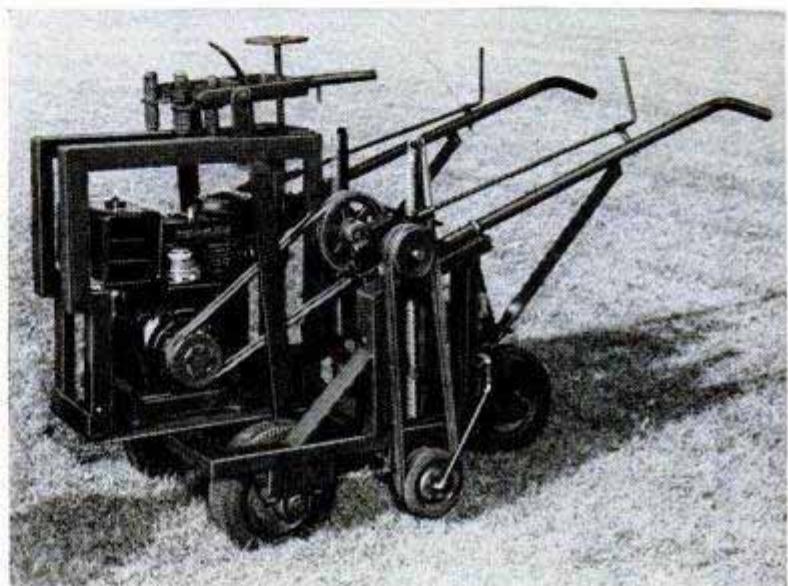




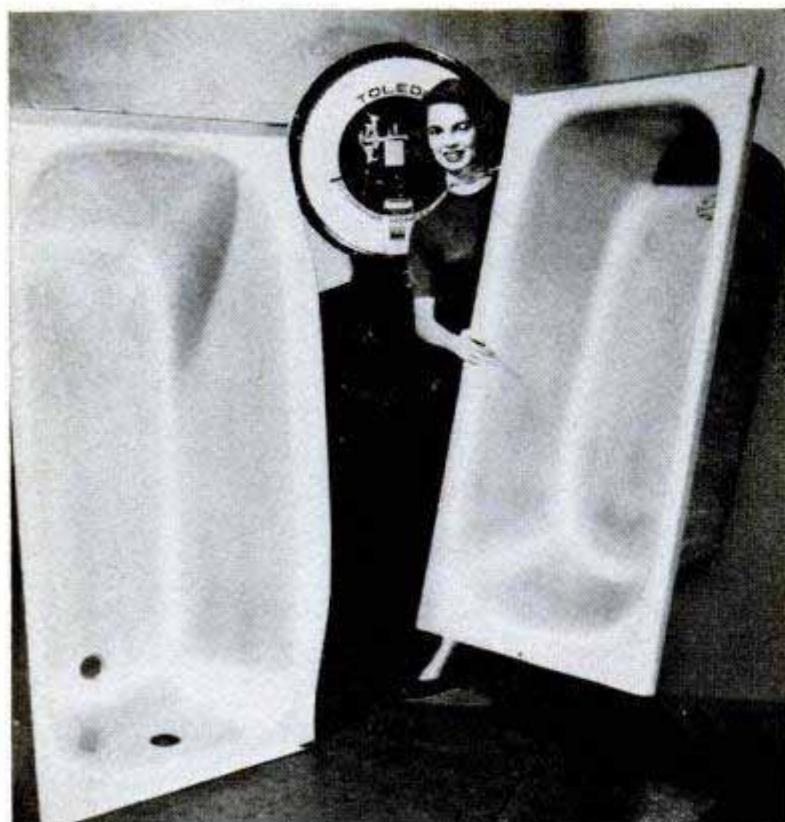
Cutter produces uniform pieces of desired length. Below, eight-horsepower engine drives the vibrating blade

## Power Sod Cutter "Walks" Along Ground

From 1 to 1½ acres of sod per day can be cut with a power machine that moves along at normal walking speed. The machine simultaneously cuts along both sides and underneath a strip of sod 16 inches wide. The operator can adjust the machine to cut the strip into blocks of any desired length. The depth of cut can be varied from ¾ inch to 2 inches. Weighing 700 pounds, the machine follows the ground contour to produce sod of uniform thickness.



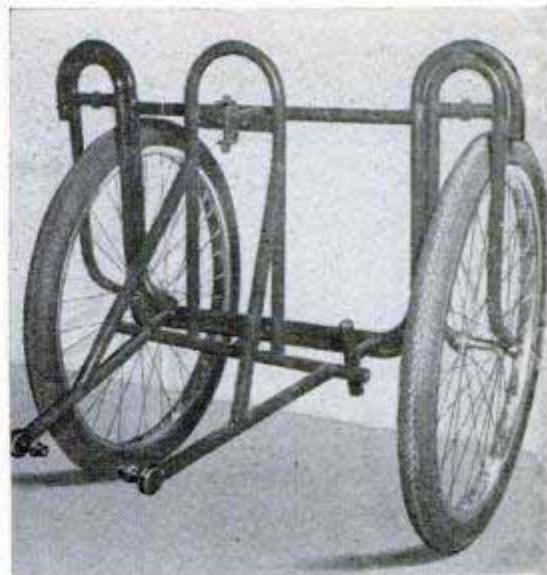
## Featherweight Bathtub Made of Glass Fiber Resists Damage



Weighing only 17 pounds, a glass-fiber bathtub can be picked up and carried by one hand. Shipping and handling costs are much lower for the new tub, which has the same dimensions as conventional steel tubs which weigh 180 pounds. Strong and sturdy, it resists chipping and denting.

## Ultrarapid Freezing Keeps Cells Alive

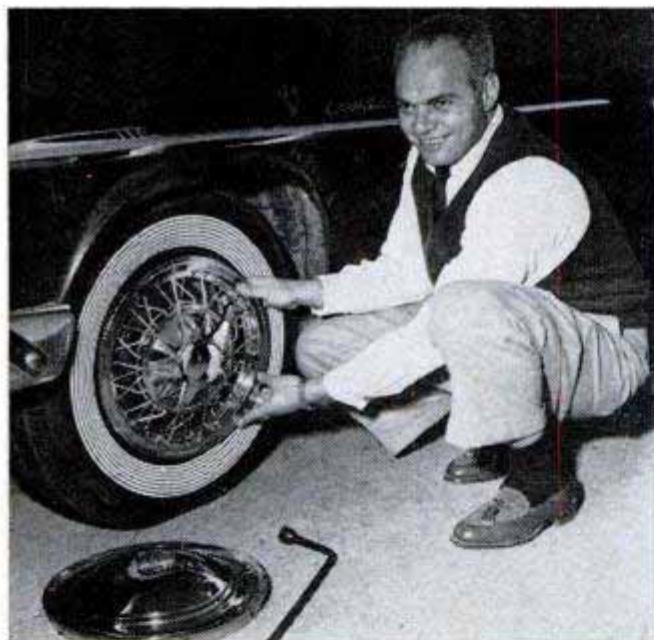
Ultrafast freezing of body tissue will keep it alive for weeks, according to Dr. Basile J. Luyet of St. Louis University. Luyet has kept cells from the heart of a chick embryo alive for one month, frozen at about 350 degrees below zero Fahrenheit. His quick-freeze method lowers the temperature of the cells several hundred degrees per second, so fast that damaging crystals have no time to form.



## Two-Wheel Bicycle Trailer Transports Heavy Loads

Designed to carry loads of several hundred pounds, a two-wheel bicycle trailer facilitates the work of newsboys, delivery boys and repairmen. Easily maneuverable in traffic, the trailer also adds stability to

the bicycle itself, preventing it from tipping over. An attachment for a passenger seat in place of the carrying compartment will soon be available. Only chassis fittings are now provided.



## Stainless-Steel Hub Caps Simulate Wire Spokes

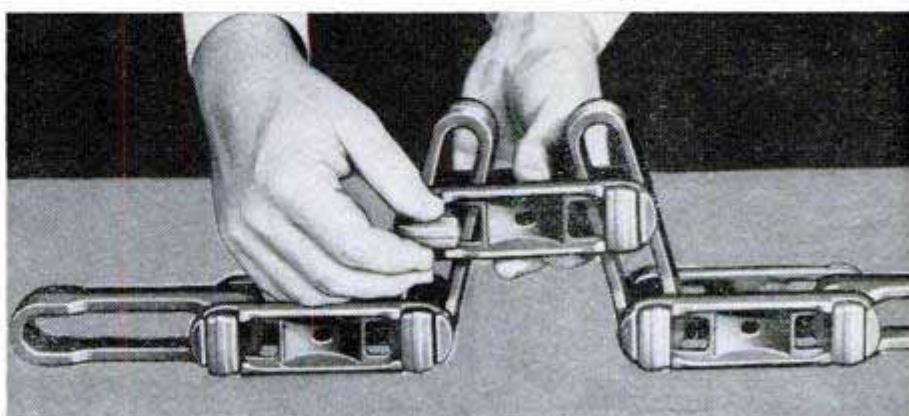
Hub caps that look like chrome-plated wire wheels allow the sports-car owner to add sparkle at one third the cost of spoke wheels. The hub caps are made of stainless steel and the spokes are inserted in ferrules around the rim. The retail price is about \$100 for a set.

## Permanent Front-Wheel Packing

You can forget about repacking front-wheel bearings when you use a lubrication wick that the manufacturer claims will provide lubrication for 100,000 miles. The wick is soaked with grease and packed inside the wheel. The principle is said to be the same as used by railroads.

## Conveyor Chain Easily Connected

No tools are needed to connect or disconnect links of a conveyor chain which won't disassemble while in service. There are only three component parts to the chain: A main link, a sidebar link, and a connecting pin. During connection, the pin is inserted and given a quarter turn until it drops into a locking position behind a ridge on the sidebar link. The simple design of the chain, which



makes it difficult for small particles to clog, suits it to dragline work or use around farms, mines and road-construction areas.



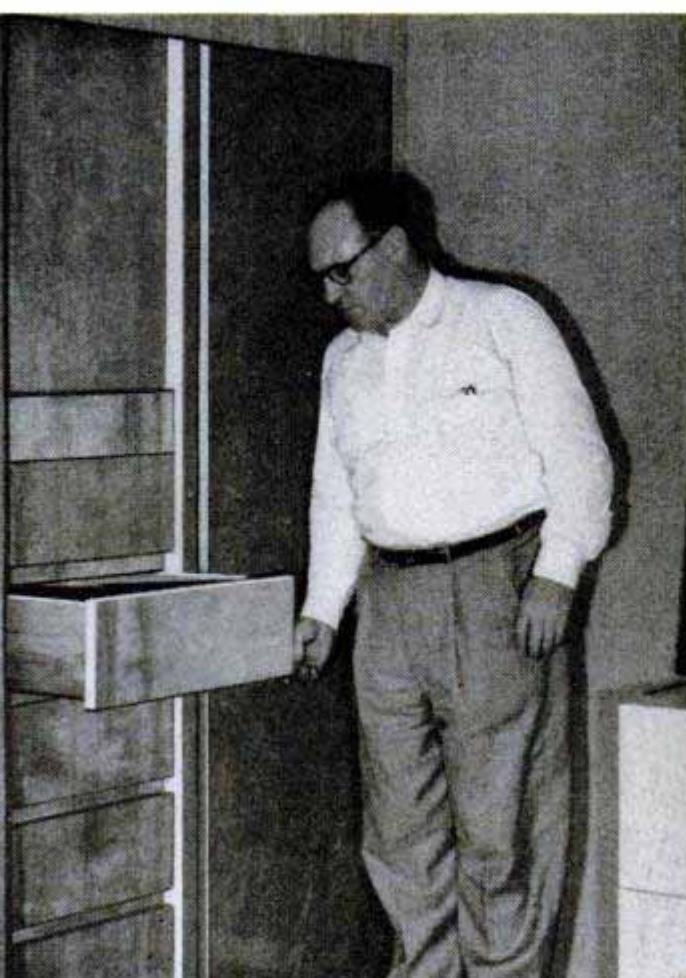
This concrete-block house on a slab foundation was built by unskilled owner during two years' spare time

# Here's the House I Built for

# \$3500

*By W. G. Waggoner*

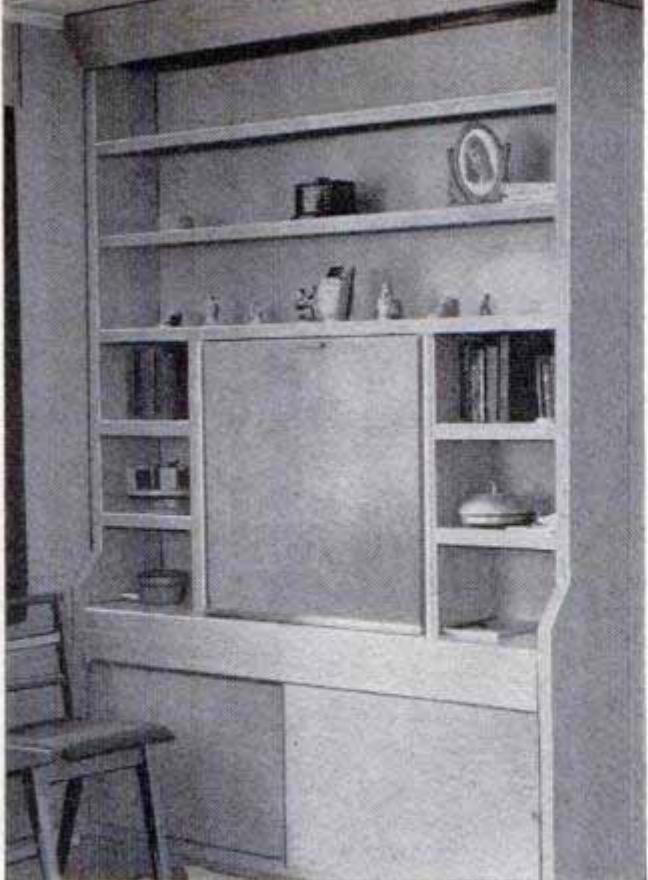
In center of double clothes closet, Waggoner built chest of drawers



BUILDING my castle in Sacramento, Calif., was not a bit less staggering to me than the Pentagon building must have seemed to the contractors who did that job. As a white-collar worker, hanging a picture was a major project.

The thing that got me started was a radio program which told how to build a dream home in a few months' spare time for \$3500. Actually, it took me two years of "blood, sweat and tears" to do it. But what a satisfaction! I hired only 10 days of skilled labor, mostly for plumbing and electrical work.

From laying the foundation to the last roll of the paint roller, the *Popular Mechanics Concrete Block House* book was my construction bible. I easily adapted the instructions to my own house plan.



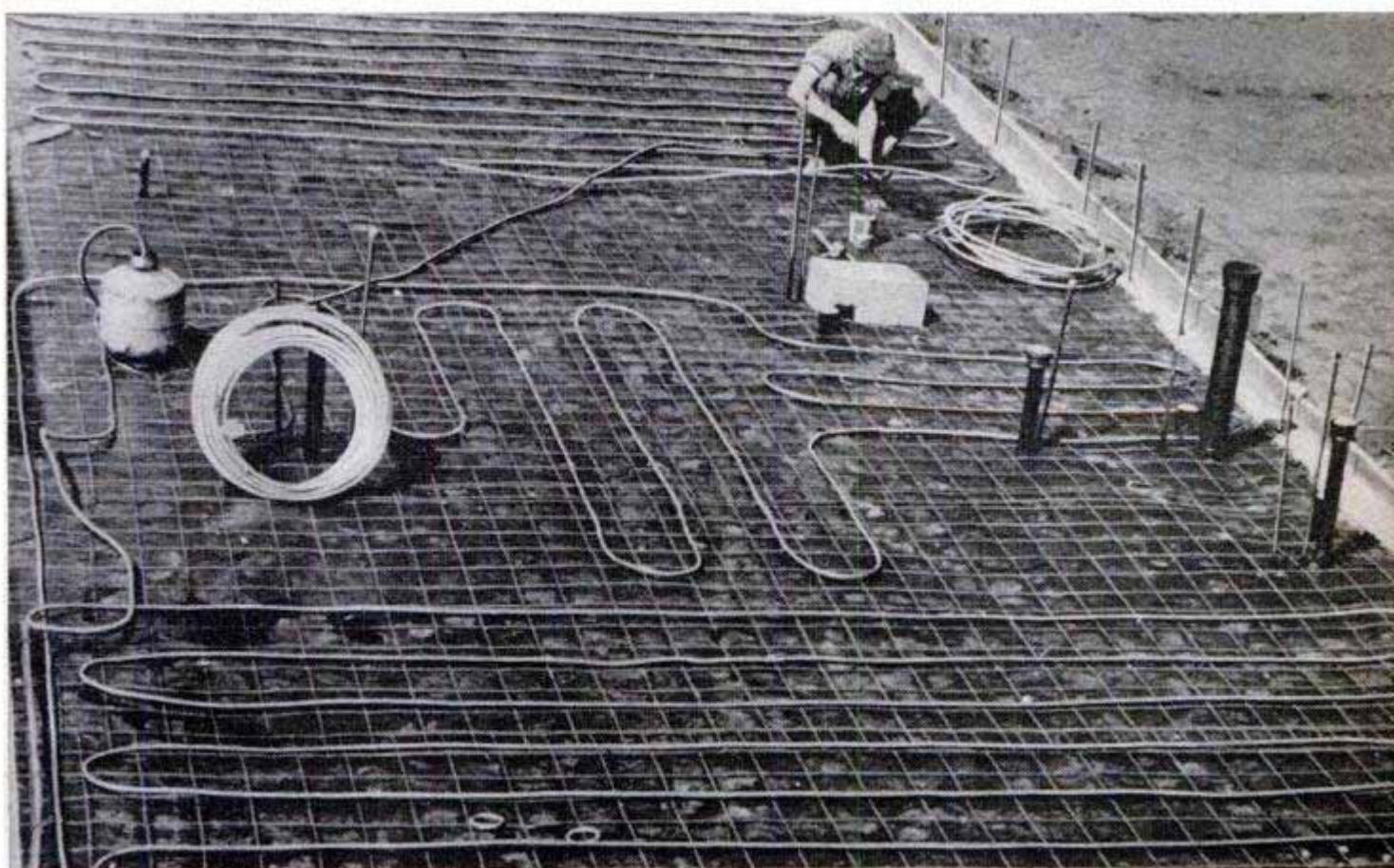
**Another built-in innovation is the bookcase-desk-dining-table unit. Table top was made from flush-type door**

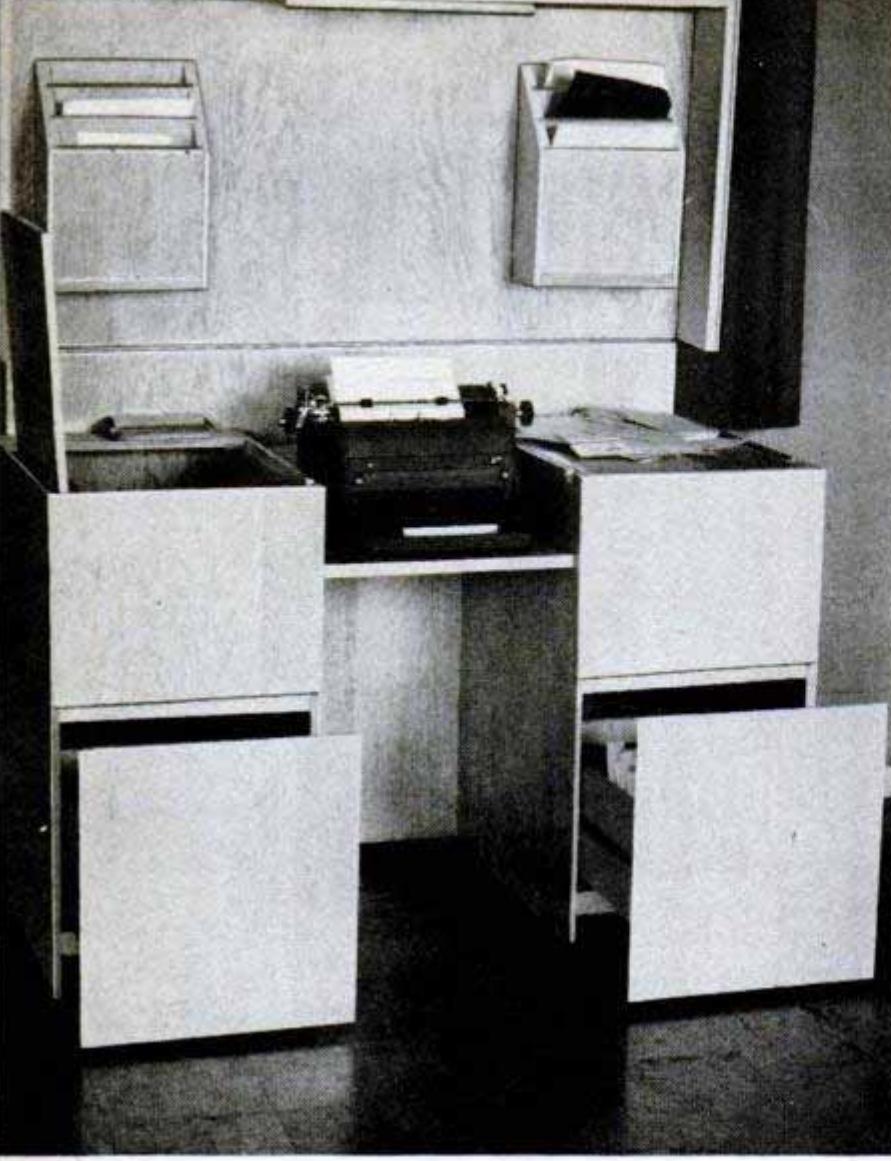
The house I built adjoins our old home and provides an excellent duplex arrangement. The new section, a complete unit in itself, has a concrete-slab foundation with over-all dimensions of 18 by 40 feet. It consists of living room with dinette in one corner, bedroom, kitchen, bathroom and cen-

ter hall. The exterior is of lightweight building blocks which were easy to handle and have high insulating qualities. The radiant-heating unit is operated by a booster-type hot-water heater and pump.

Building your own home is a wonderful chance to give free play to the imagination

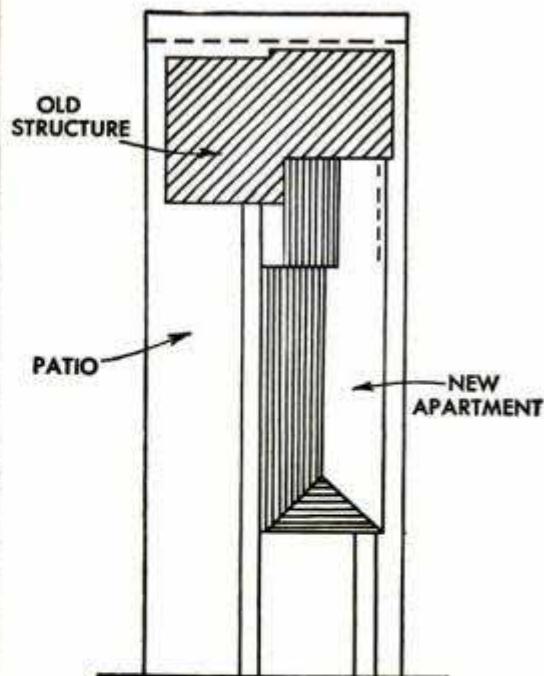
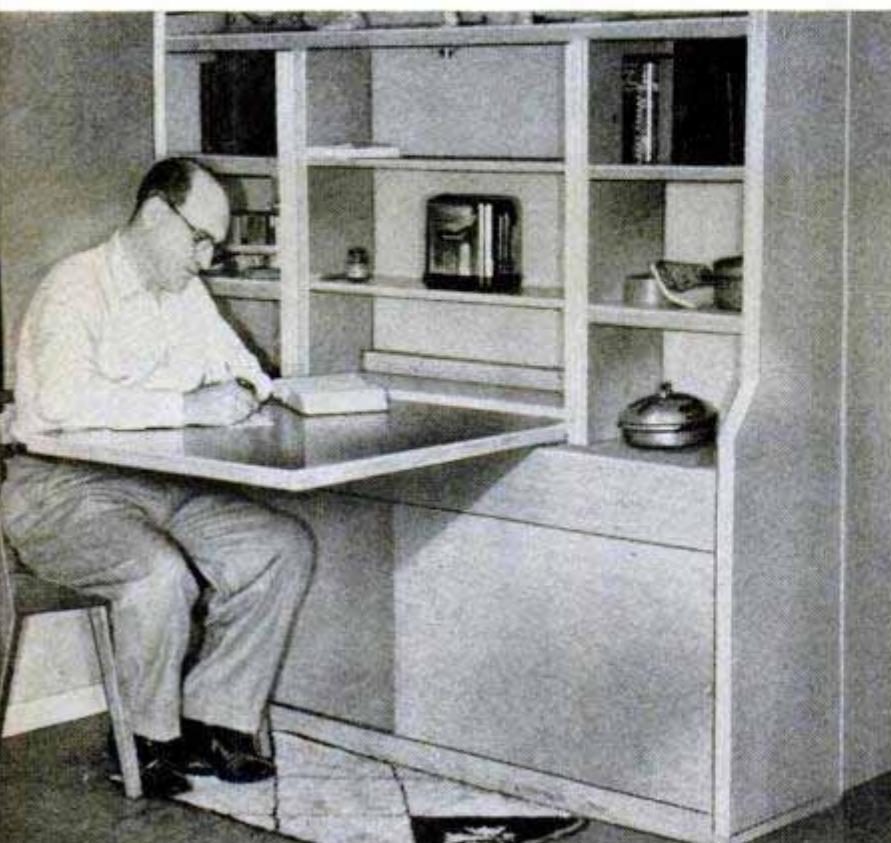
**Radiant-heating installation in the floor consists of half-inch copper tubing tied to reinforcing steel wire**





**Waggoner designed and built this collapsible "office" which holds typewriter and filing cabinets. Lid on top of drawer is raised to support top in open position. It's made of plywood**

**Table top which opens from bookcase (also shown on page 147) can be used as desk as well as for dining. Waggoner uses the space just above it for storing kitchen items, such as toaster**



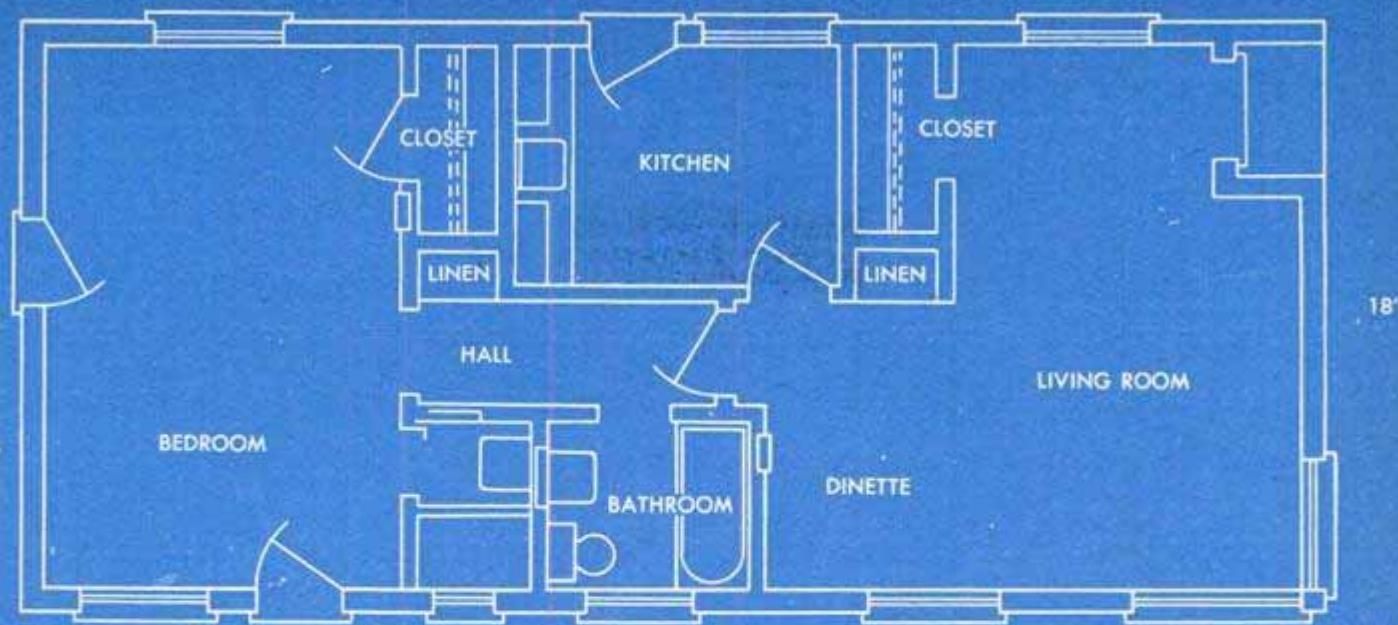
**Sketch shows how new apartment, actually complete house, was added to old home**

—especially in regard to various built-in items. Refinements such as radiant heating, foil insulation, mercury light switches, flush overhead lighting, magnetic and touch latches on cabinets can be had by anyone with the price. Builder's brain storms that result in innovations pertaining to built-ins and timesaving gadgets are another matter.

I'm proud of my double closets with sliding doors on a single overhead track with a built-in chest of drawers between. These sliding doors activate a light switch of my own design — a bed caster on the end of a stick operates the refrigerator-type switch. The closet lights up when either of the doors is opened beyond the halfway mark.

Then there's my combination bookcase, storage compartment and drop-leaf table. The table is built from a section of a flush-type door. It is supported without legs and folds flush into the bookcase. The leftover part of the door now serves as the top of a corner table which can be moved over to form an extension for the table.

I built a clothesbin into a wall with a de luxe feature—a concealed compressed-air doorstop that prevents slamming. My kitchen-cabinet doors slide instead of swing open. To make the sink cabinet I used a single piece of plywood for the front and cut out the doors with a portable electric

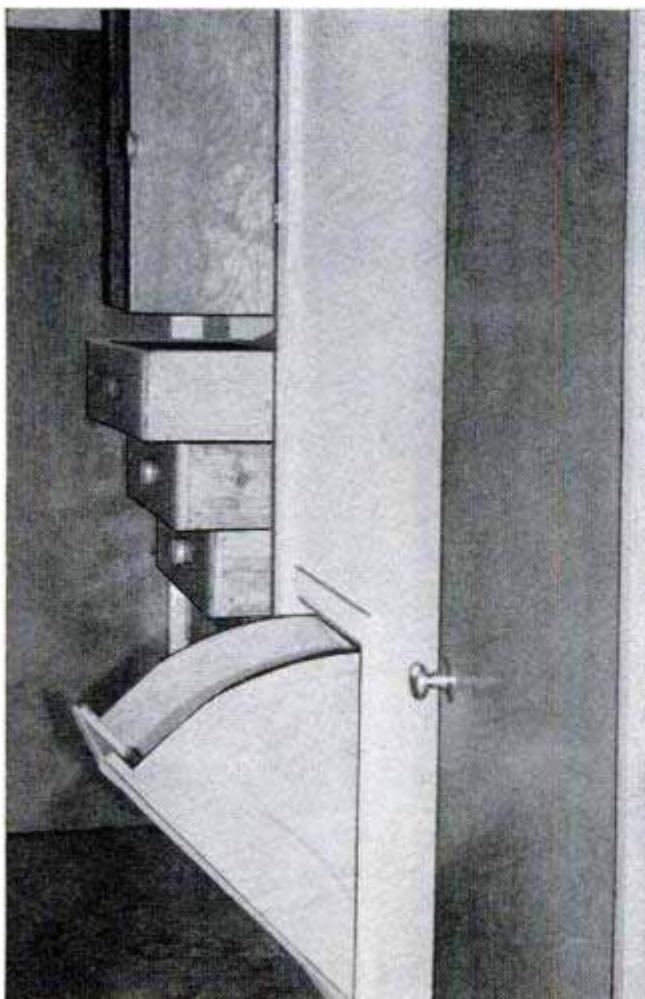


**Waggoner's one-bedroom floor plan provides plenty of closet and storage space. His specialty is built-ins**

saw. Then I hinged them back into the same openings with piano hinges. Cutting the doors in this manner, they had to fit.

My favorite kitchen gadget is the clock made from an old electric timepiece. I took everything away from this clock but the works and the silhouette hour, minute and

**Built-in chest of drawers with linen closet above and a clothesbin below occupies wall space in hall**



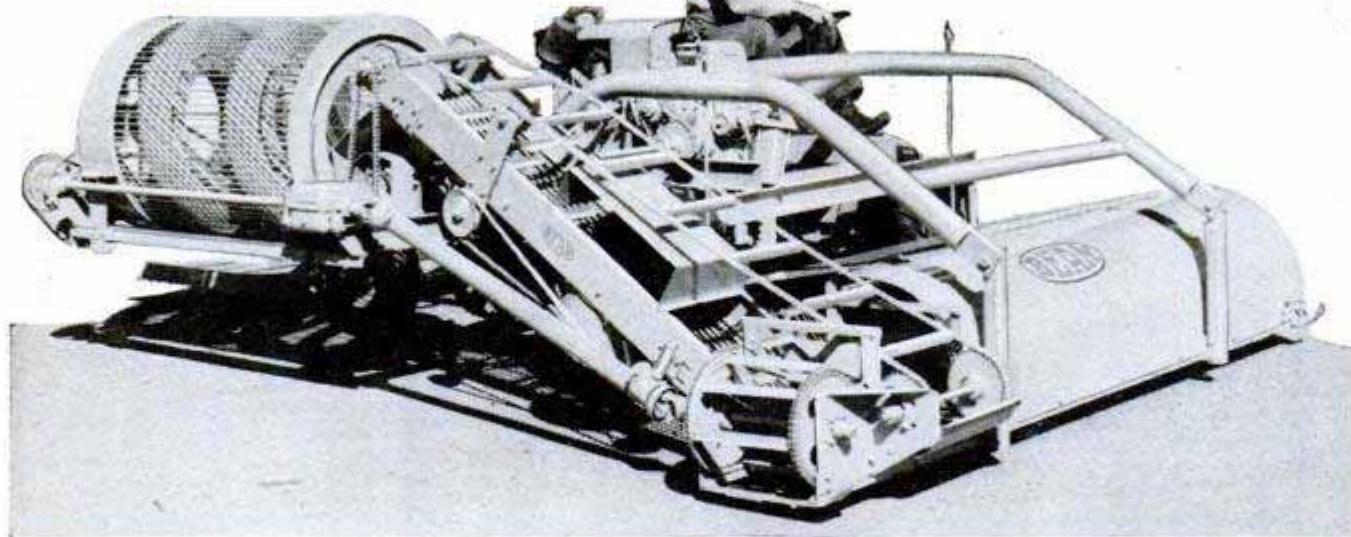
sweep-second hands. Now I have a clock with nothing but hands on the kitchen wall, with ornamental thumbtacks as the hour markers.

Now that the house is complete I have lost some of my awe for the Pentagon building. **★★★**

**Double clothes closet trimmed in combed plywood has light which turns on when sliding doors are opened**

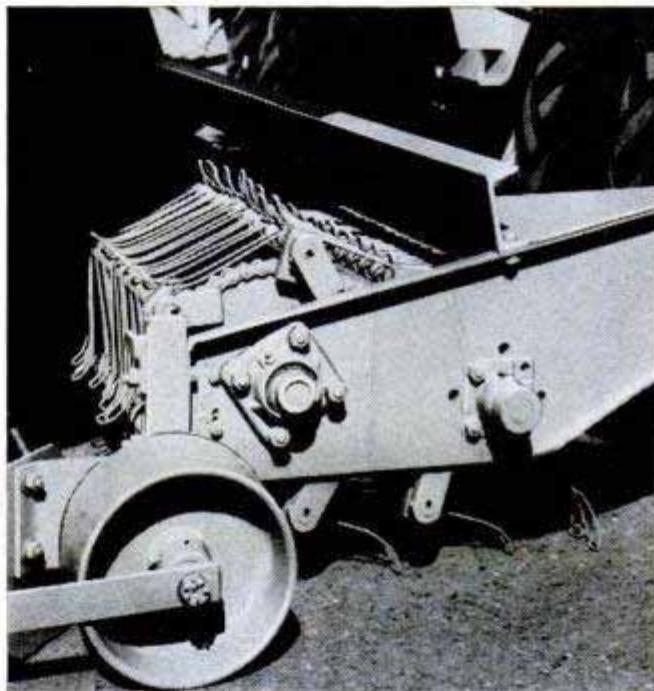


## Harvester Hugs Ground To Pick Up Walnuts



Self-propelled machine picks about an acre of walnuts per hour. Right, picking fingers scoop up nuts

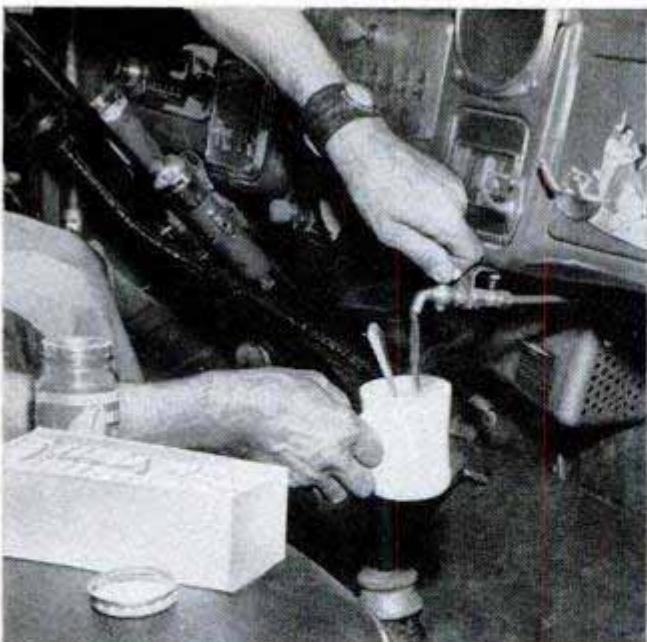
Walnuts are scooped from the ground with a minimum of dirt and leaves by a new self-propelled harvester. The machine hugs the ground, its picking fingers following the contours to harvest all the nuts without digging into the soil. The whirling fingers toss the nuts into a conveyor which moves them to a grated elevator where a fan blast eliminates most of the leaves and dirt. The nuts then move into a double "squirrel cage" for a final cleaning and are raised by spiral elevator for sacking or delivering to the trailer. The harvester has two gasoline engines, one to provide motive power and the other to operate the harvesting apparatus. Thus the harvesting-unit speed is constant regardless of the ground speed of the vehicle.



## Global Air-Race Game Teaches Players Geography With Recreation



Geography is combined with recreation in a game which uses a globe of the world as a playing board. The game using an eight-inch metallic world globe, play money and play gasoline, magnetic planes and a propeller at the base of the globe, enables two, three or four players to "fly around" the world over a red-dotted route from airport to airport. The players spin the four-bladed propeller, which entitles them to chance cards. The cards advance or penalize the players, and the first one to make a trip back to the original airport wins the game. The globe is printed in seven colors and carries over 2500 place names.



Faucet is mounted within easy reach of driver. Water is heated by passage over hot manifold of the engine

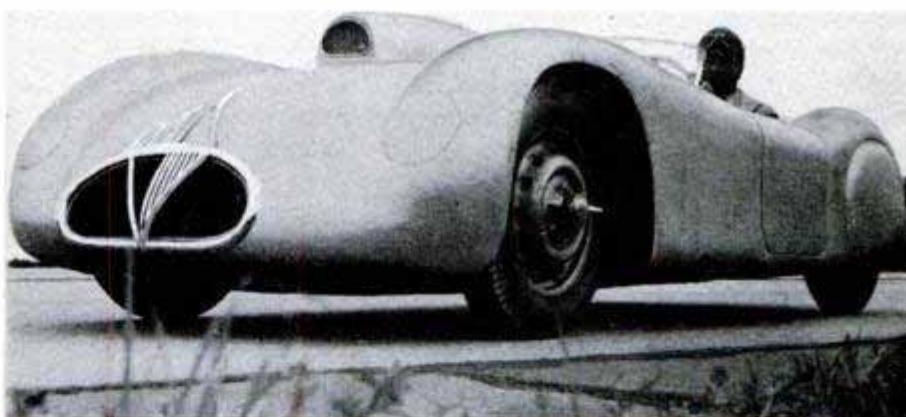
## Water Tank Atop Truck Engine Supplies Cab With Hot Water

Ray Justice of North Hollywood, Calif., likes a cup of coffee. He likes it so well, in fact, that he installed a hot-water faucet below his truck dashboard in order that he might make instant coffee whenever he

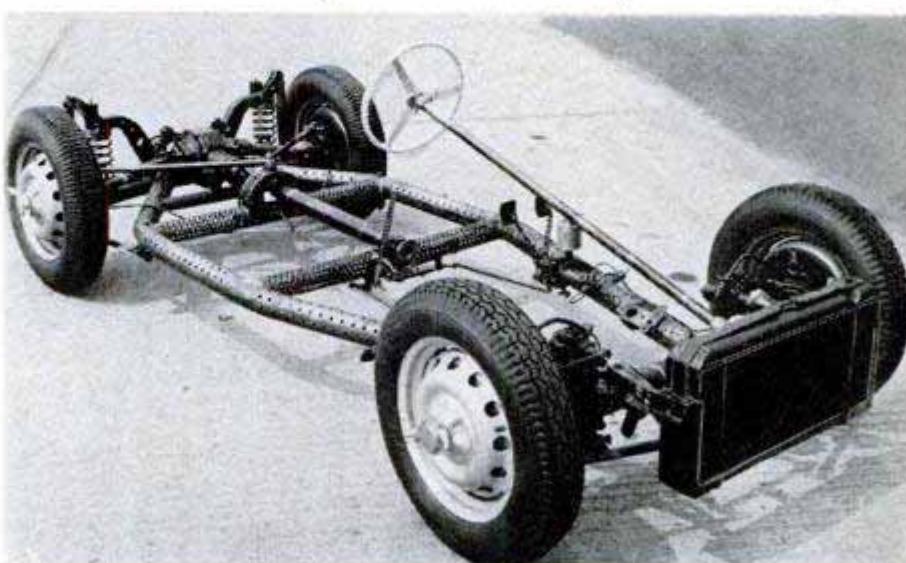
wishes. A stainless-steel tank atop the engine connects to a coil which winds around the hot manifold before it reaches the cab spigot. A few minutes of running time assures piping-hot water.

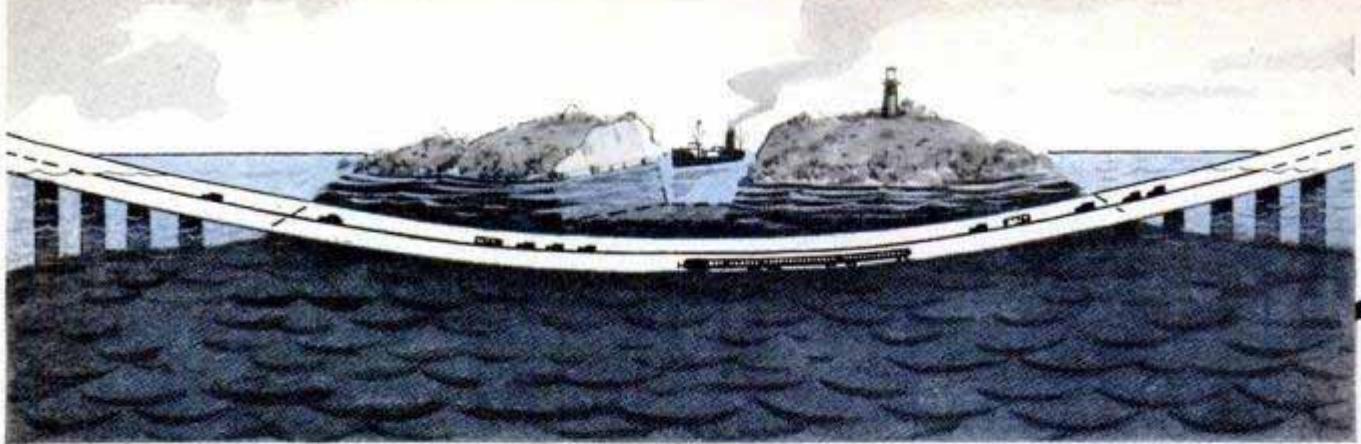
### Perforated Sport-Car Chassis

Formed of strong steel tubing welded and perforated with thousands of holes to reduce its weight, the chassis of the Borgward sports racer is rugged as well as light. The radiator core is mounted very low and forward and has an oil cooler on one side. The differential is mounted on the chassis frame, as in the German Mercedes, and power is transmitted by two drive-shafts, each shaft having two universal joints and a slip joint. A light but rigid axle connects the wheels to keep them parallel at all times. Radius rods and torque arms are also included in the suspension system. While the engine is only about 40 percent as large as that in a Chevrolet, it is expected to drive the car at more than 100 miles per hour. The body is of hammered aluminum.

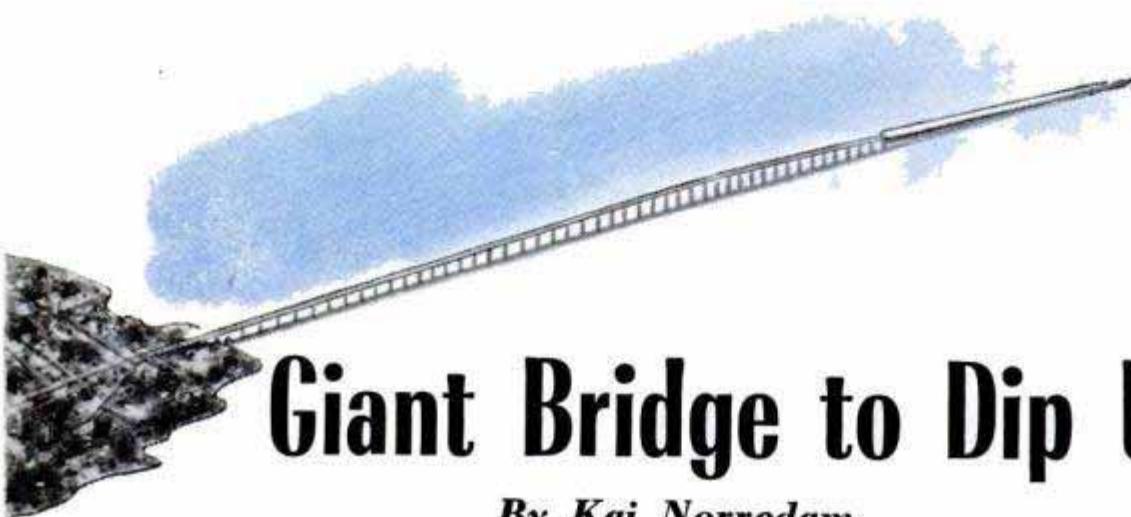


Hammered-aluminum body rests on steel frame perforated for lightness





Drawing shows how Denmark's two-level bridge would dip under island of Sprogo to allow for ship canal



# Giant Bridge to Dip Under

By Kai Norredam

A BRIDGE is being planned in Scandinavia which will be one of the most unusual in the world. Connecting the two main islands of Denmark, Fyn and Sjaelland, it will be eight to ten miles in length and at one point will dip under an island.

The idea of building a bridge of unknown dimensions between Fyn and Sjaelland has long fascinated Danish authorities. The bridge will not only be unique in design, but will require more money and more material

than any other bridge in the world. In order to reach the Atlantic Ocean, the heavy ships from the Baltic Sea will have to pass through the eastern waters to be spanned by the bridge. As this is the only way of access, it is expected that the other Baltic powers will claim their right to free passage for their ships.

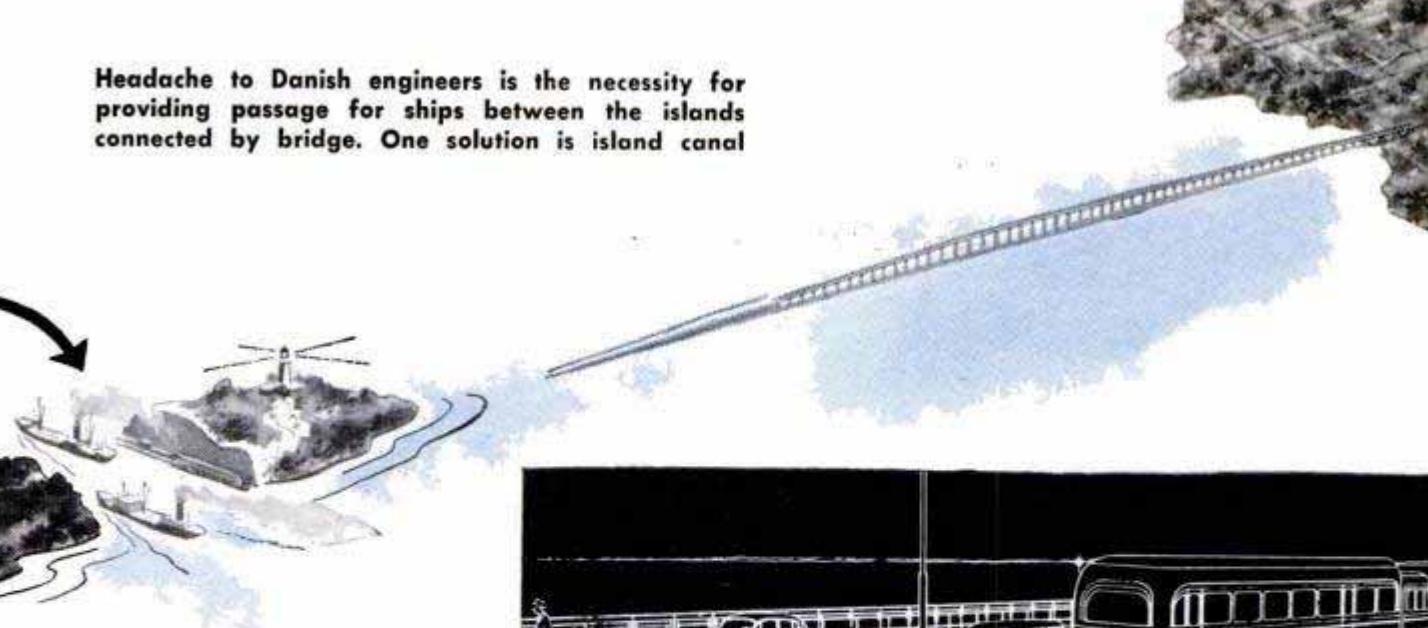
During the last 20 years, many plans have been made. The most interesting of these plans has an ingenious solution to the ship-

passage problem. From Korsor (harbor of Sjaelland) a bridge would be built to the small island of Sprogo which is about half way to Fyn. Half a mile off shore the bridge will dip into the sea, continuing as a tunnel which passes beneath Sprogo in an east-west direction. The tunnel will emerge on the other side and continue as a bridge to Fyn. At a right angle to the tun-



Map shows location of long bridge needed between the islands of Fyn and Sjaelland with tiny Sprogo half way

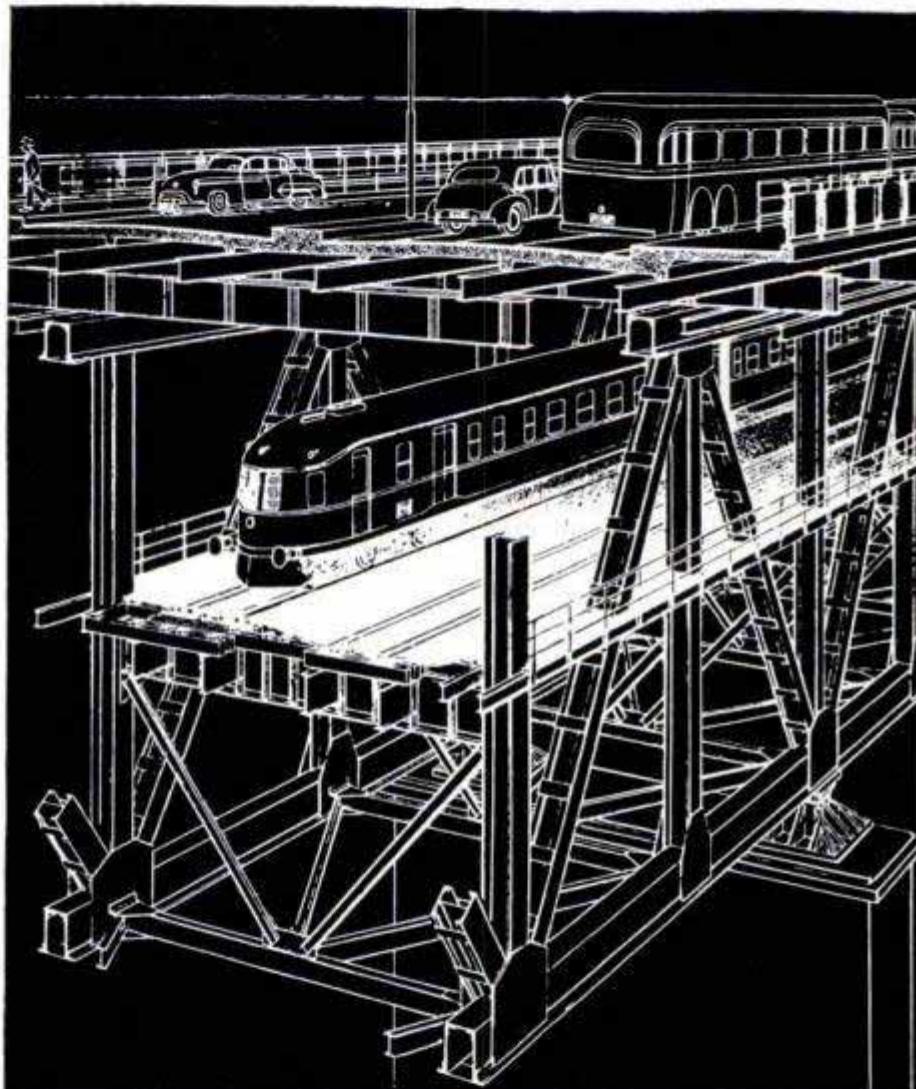
Headache to Danish engineers is the necessity for providing passage for ships between the islands connected by bridge. One solution is island canal



# Island

nel, a canal would bisect the small island from south to north. The canal would have a width of 900 feet and be 130 feet deep, permitting passage of the biggest ships. The canal would be superimposed on the tunnel, its bottom separated from traffic going through the tunnel by a few feet of clay and concrete.

The most difficult part of constructing the bridge would be the mounting of supporting pillars. This will probably be done with the aid of ship caissons. These are huge (weighing up to 10,000 tons) iron and concrete "bathtubs." These are built on shore and launched like ships. The floating caisson will be conveyed to its place and tipped 180 degrees by means of letting sea water into some of its surrounding hollow tubes. The open end of the



Drawing above shows how the two-level bridge would accommodate two lanes of automotive traffic on the upper level with sidewalks for pedestrians. The lower level has two railroad tracks. Below, another Danish project, the Little Belt Bridge which now connects the island of Fyn with Jutland

Monberg & Thorsen photo, Copenhagen





Monberg & Thorsen photo, Copenhagen

The proposed new Danish bridge will dwarf the Bridge of the Great Stream which is located in south Denmark

caisson will steady itself against the sea bottom. The closed end of the caisson, reaching some feet above sea level, will serve as an excellent foundation for the pillar. Down through the iron tubes, holes will be bored several feet deep into the clay of the sea bottom. The tubes and their corresponding holes are then filled with concrete. To steady the pillar further, the sea water is sucked out of the caisson, leaving the pressure of the surrounding water to keep it in place. When the pillars are built, the superstructure will be mounted in 268 sections built on shore.

The bridge is to be built with two levels, the upper level containing two lanes for cars, each 21 feet wide, and two seven-foot pavements. The lower level of the struc-

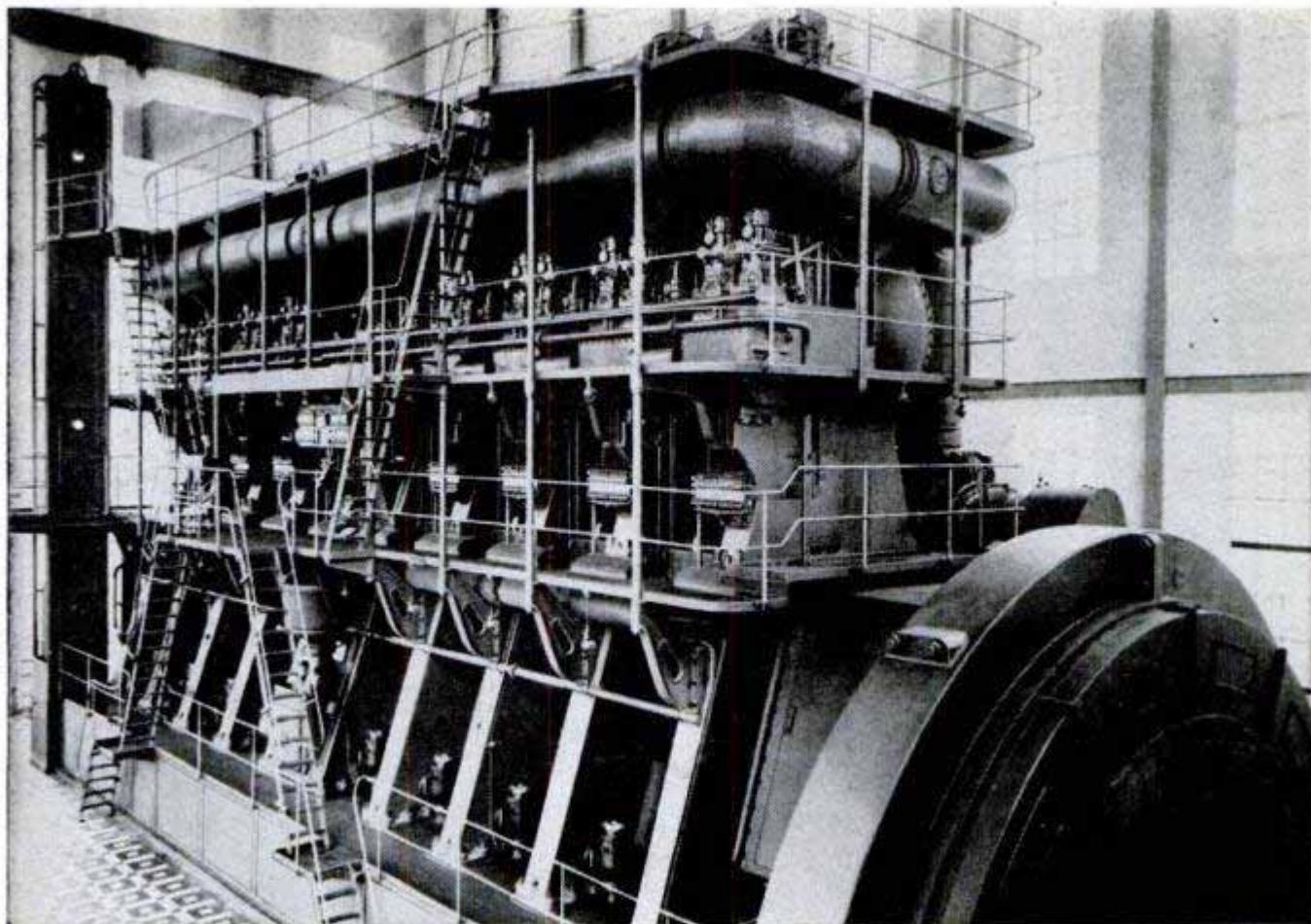
ture is designed to hold two railroad tracks.

A second plan provides for a bridge in one piece with a length of about 12 miles, connecting Fyn and Sjaelland directly. The eastern part of the bridge would rise to a height of 200 feet above the surface of the water to allow for the passage of big ships. The tallest of its 269 supporting pillars would be 360 feet high. This would also be a two-level bridge. The cost of either bridge is estimated at \$500,000,000.

In a country surrounded by water and islands, Danish engineers have become experts in the art of bridge building. Two outstanding examples are the Little Belt Bridge, which connects Fyn with Jutland in the southern part of the country and the Bridge of the Great Stream. ★ ★ ★

Caisson to support bridge pillar is launched like a ship and then towed to the site. It weighs 10,000 tons





## Massive Diesel Engine Generates Electricity

One of the largest diesel motors in the world generates electricity for the city of Copenhagen. Thirty-eight feet high and 80 feet long, the massive generating unit turns out a maximum of 15,000 kilowatts. Fuel oil for the engine is supplied from a near-by reservoir. The huge unit is completely self-contained and the motor is independent of electric current; should a serious mishap

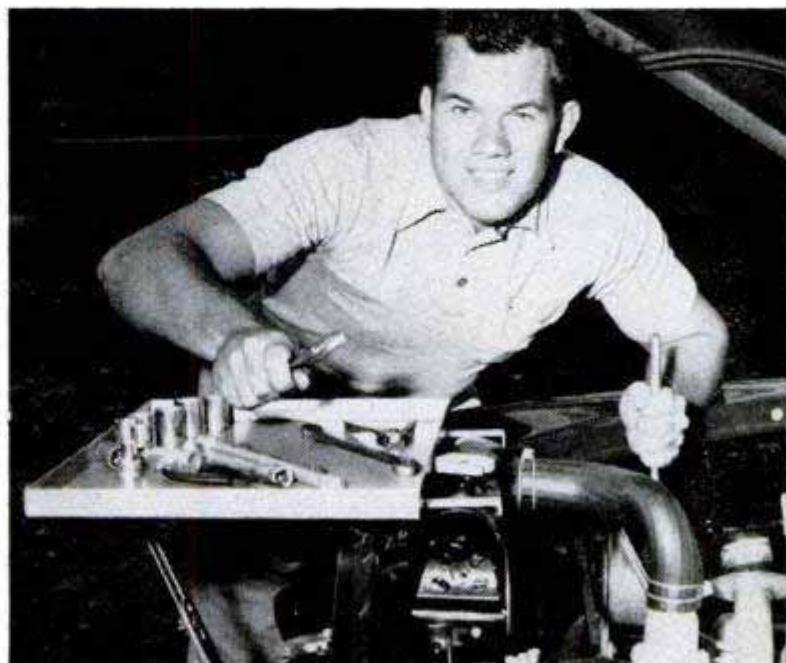
occur, causing the regular power supply to be cut off, the engine could be started in a few minutes. The water cooling system is designed so waste heat may be used to warm buildings located within a mile of the generator. After this, the heated water would be piped underneath the streets and returned to the cooling system cold enough for reuse.

## Mechanic's Tool Tray Hooks Onto Radiator for Convenience

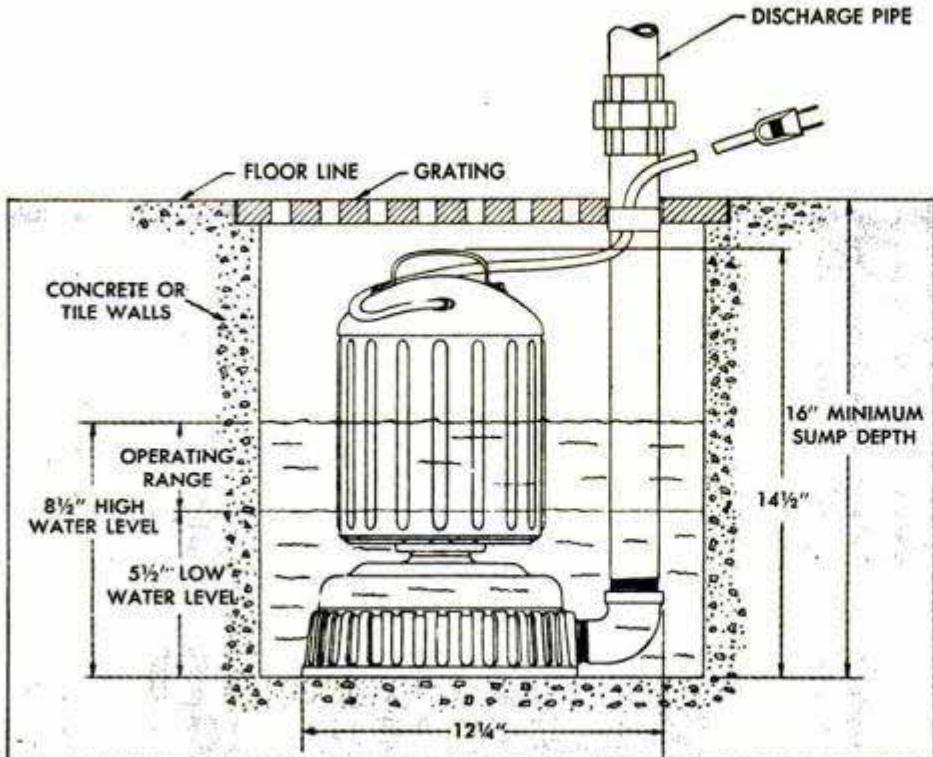
Saving time on automobile repairs, a mechanic's tray keeps repair tools close at hand. The 14 by 20-inch holder hooks over the radiator and an adjustable rod keeps it level. The tray fits all 1945 or later model cars and folds for compact storage.

## Panama Canal Has Big Year

More shipping passed through the Panama Canal during 1952 than in any previous year. The total number of seagoing merchant ships passing through the canal for the first 11 months exceeded by 562 the total for the full 1951 calendar year. By year's end, the total exceeded 7000 ships.



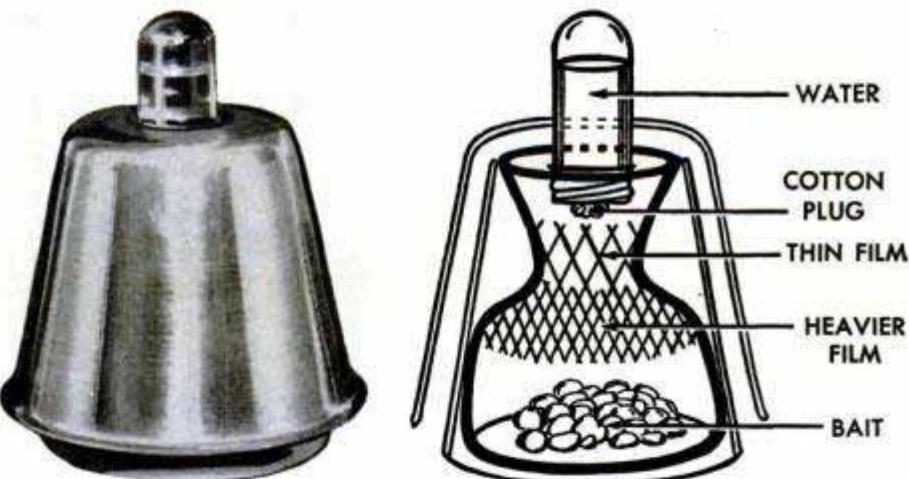
## Submersible Sump Pump Has No Floats Above Floor Level



Installed simply by placing it in the basement drainage pit, connecting the discharge piping and plugging in the electric cord, a submersible sump pump is completely below floor level and mounts no protruding floats or rods. Motor and operating switch are enclosed in a stainless-steel housing which keeps electrical parts clean and dry. The housing also functions as a float to control pump operation and protects working parts from water if power fails and the unit is submerged. The pump's operating range is set at the factory.

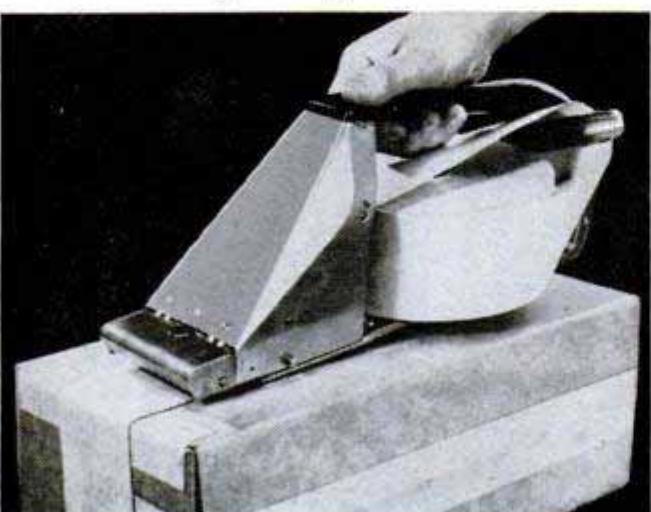
## "Flowerpot" Trap Lures Insects and Humidifies Air

Roaches, ants, silverfish and other insects are captured by a trap which looks like a flowerpot turned upside down. An outer shell hides the essential part of the trap — a wide-mouth, narrow-neck bottle which contains the bait. Bugs crawl up its netting sides, over the lip and down the inside, but cannot escape because of a slippery smear band within the jar. An inverted bottle on top of the trap feeds water to a cotton wick which humidifies the air, facilitating dispersion of the bait odor. The captured



insects are killed by filling the trap with hot water.

## Portable Tape Dispenser Facilitates Sealing of Shipping Cartons



Weighing only 2½ pounds, a portable tape dispenser eliminates moving large shipping containers to a centrally located tape machine. It applies the tape directly to the carton. The moistening tank won't leak even when the unit is turned upside down. The dispenser accommodates 600-foot rolls of gummed or filament tape up to three inches wide.

Three tropical woods have been found that are immune to the ravages of ship worms and therefore could be used to advantage in the construction of dock pilings and small boats.

## Cockpit Capsule Allows Pilot to Escape High-Speed Plane



Douglas Aircraft Company sketch

Bottled rocket energy may be used to shoot the cockpit from the fuselage and permit emergency escape from the 2000-mile-per-hour, stratosphere-flying aircraft of the future. A design proposed by A. M. Mayo, an engineer of the Douglas Aircraft Company, provides for a sealed cockpit capsule that could parachute down slowly and land safely on land. If the capsule, which is actually the forward section of the plane, should come down on water, it would float until the pilot emerged.

## Concrete Slabs Bend Like Steel When Reinforced With Steel Wire

Reinforced with slender steel wires stretched to about two thirds their ultimate strength, thin slabs of concrete have tremendous elasticity. Slabs are made from  $\frac{1}{2}$  to 1 inch thick and in four-foot widths. Any length up to 20 feet is available. Larger sizes can be made up to 8 feet in width and 40 feet in length. After the concrete has set, the tension in the wire puts the concrete under high compression in both directions. This compression prevents water absorption and permits rough handling without damage. If the slab is overloaded it will bend to a quarter circle and straighten itself out when the load is removed.



Television sets in the nation's homes numbered nearly 21,000,000 January 1, according to R.C.A.



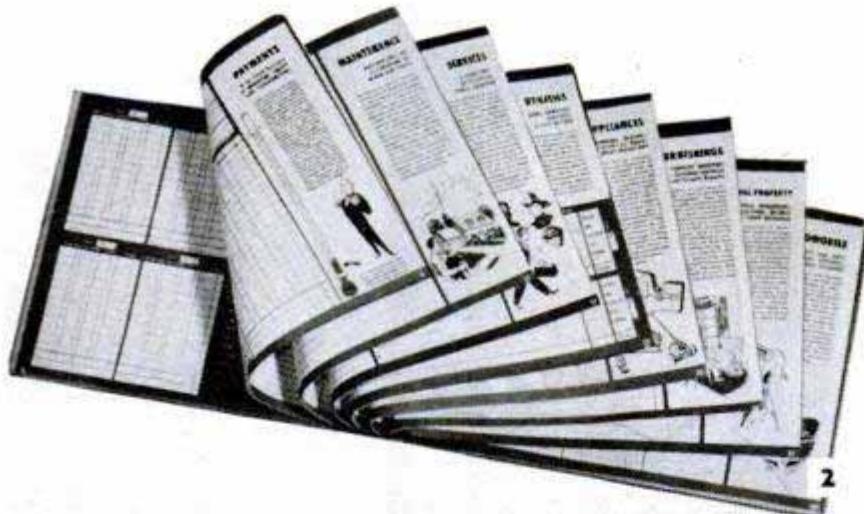
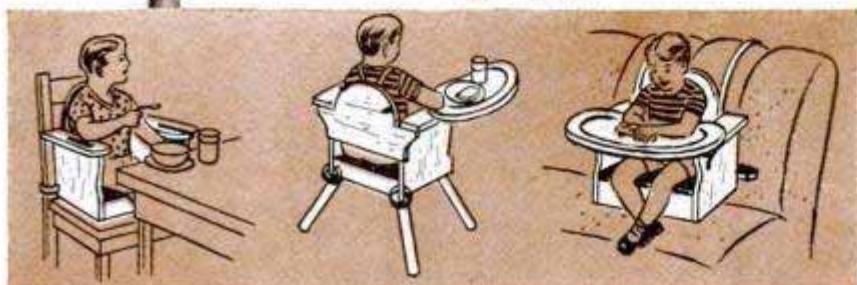
## Offset Gun Sight Leads Birds in Flight

Hunters using a new offset gun sight automatically lead game birds so the shot intercepts the line of flight. The sight is a spring-steel framework that snaps on or off the gun barrel. If the bird approaches from the left, the sportsman sights along the bar extending to the left of the barrel. He uses the right sight bar for birds approaching from the opposite direction. Thus the gun barrel automatically is aimed slightly off the direct line of sight to compensate for the time lapse of the hunter's reaction and the travel of the shot while the bird is in flight.

# WHAT'S NEW FOR Your Home



1



2



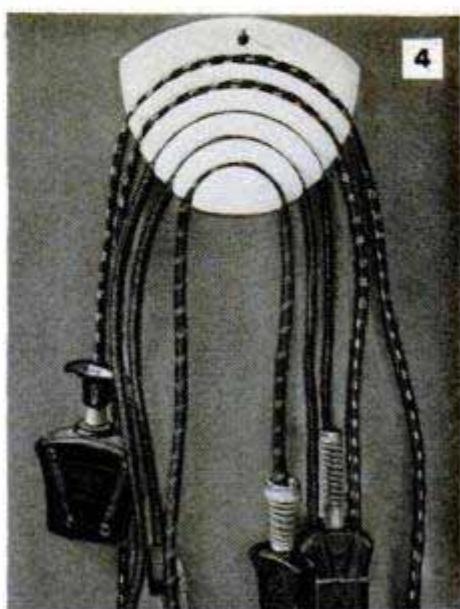
3

**1. CHANGEABLE CHAIR** for children from four months to four years old serves variety of needs. Minus the adjustable tray, it's a play chair. Attachment of tray to one arm adapts it to TV viewing. With legs removed, it converts a standard chair into a high chair, also serves as auto seat

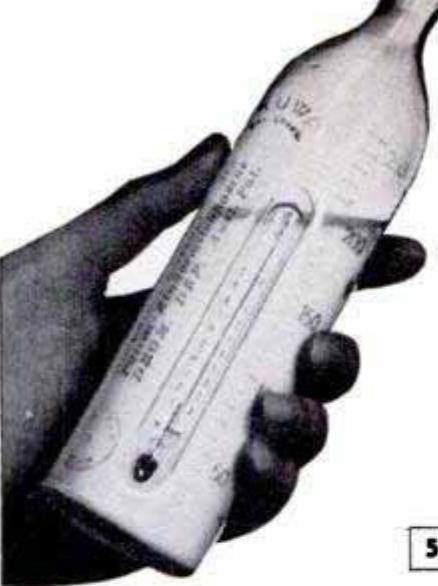
**2. HOMEOWNER'S RECORD** book shows just where the money's going, contains 18 sections with space for every expense from monthly payments to taxes to repairs. Kept up to date, the book gives a clear and continuous picture of expenditures and improvements, helps locate information quickly

**3. ALL-PURPOSE KNIFE** is a carving knife, bone and food saw, and a serving fork. Fine saw teeth cut easily through bone and frozen food. Knife edge can slice meat and vegetables wafer-thin. After meat is carved, it can be transferred to plate with forklike front prongs

**4. HANGER** for appliance cords is made of bright-colored china, hangs on kitchen or closet wall. Five curved grooves hold the cords in a position which prevents kinking of the cords or the breaking of the tiny copper wires inside. Cords are thus kept neatly within easy reaching distance



4



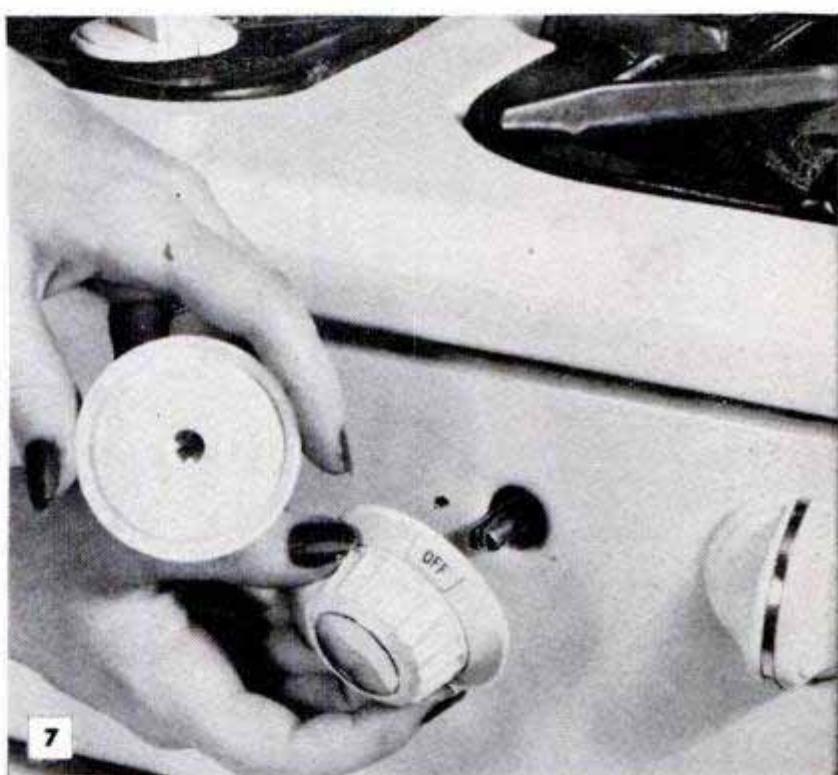
5

**5. BABY BOTTLE** with built-in thermometer prevents the serving of milk that's too hot or too cold, also indicates if a half-full bottle needs to be reheated. It is made in Germany



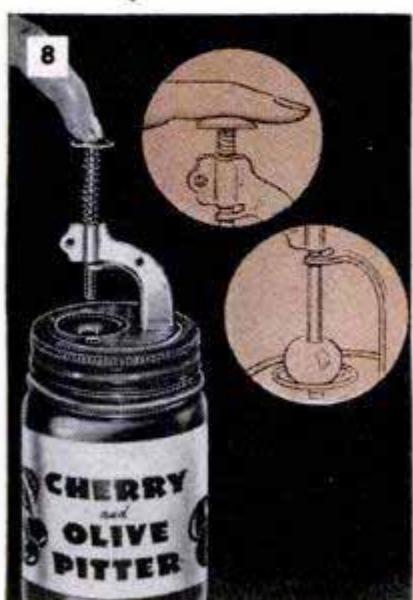
6

**6. SINK** features small side well with separate drain. Perforated waste receptacle holds scraps and garbage, may be removed from well for washing and rinsing fruits and vegetables

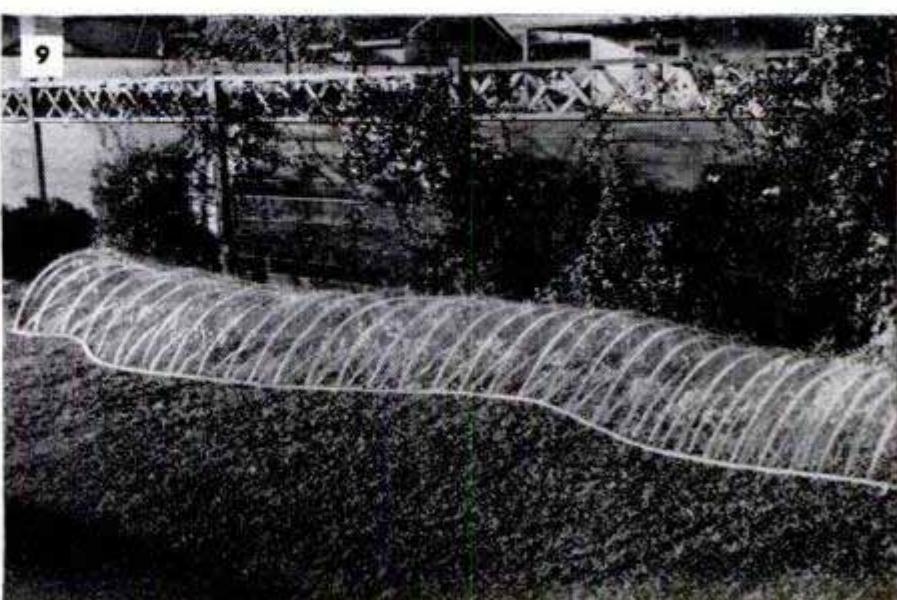


7

**8. PITTER** for cherries and olives forms the lid of a pint Mason jar into which pits fall. Cherry or olive rests in concave dish with hole in bottom. Plunger rod pushes pit through hole



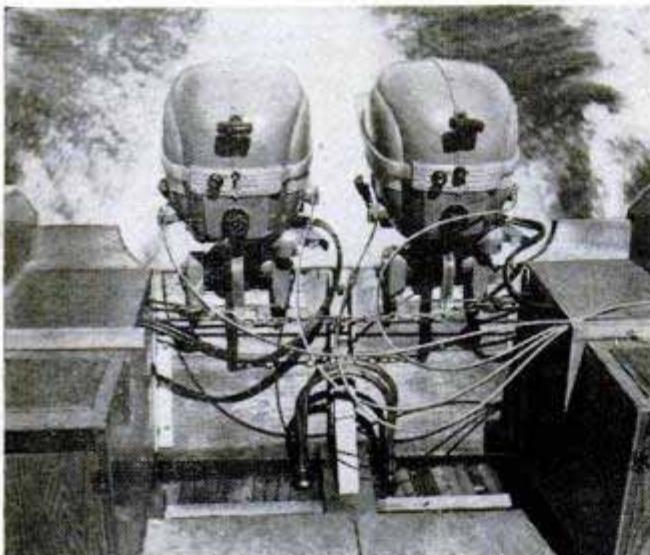
8



2 9



Ewald bought the hull and built the cabin of his boat himself. Boats on facing page are commercially built



Above, remote controls enable the pilot to sit up front as on inboard cruisers. These motors put out a combined 50 horsepower. Below, Mrs. Ewald at the wheel. The base of the seat contains extra gas tank



## Twin Outboard Motors Power "Poor Man's" Yacht

SOMETHING has happened to the yacht-club set—it has been invaded by the outboard motor. Cabin cruisers, once too high-priced for the average man, are now cheaper than the family car.

Responsible for the change are compact, high-riding and usually broad-beamed boats known as outboard cruisers. You'll see them on rivers, lakes and oceans this year in amazing numbers. A few years ago they were used for day sailing or overnight fishing trips only. Today 1500-mile voyages are not uncommon.

A veteran in the field is Harris Ewald of Milwaukee, Wis., whose interest is both professional and recreational. He is chief engineer for Evinrude Motors.

Ewald mounts two 25-horsepower motors behind his 18-foot cruiser and skims along Lake Michigan at 30 miles per hour. He and his wife travel as much as 1200 miles a season on week-end cruises alone. They've made extended trips of several weeks in the boat. Similar boats have sailed the inland waterway from Florida to New York in safety and comfort.

Advantages of the outboard cruiser are many. Economy is the biggest, of course. The Ewald boat cost less than \$1500, complete with motors (he bought the hull and finished the cabin himself). You can buy a complete boat, a semiassembled boat or a kit of precut parts. A top-grade cruiser can be put into the water for about \$1800 complete with motor—less if you do the work yourself.

★ ★ ★

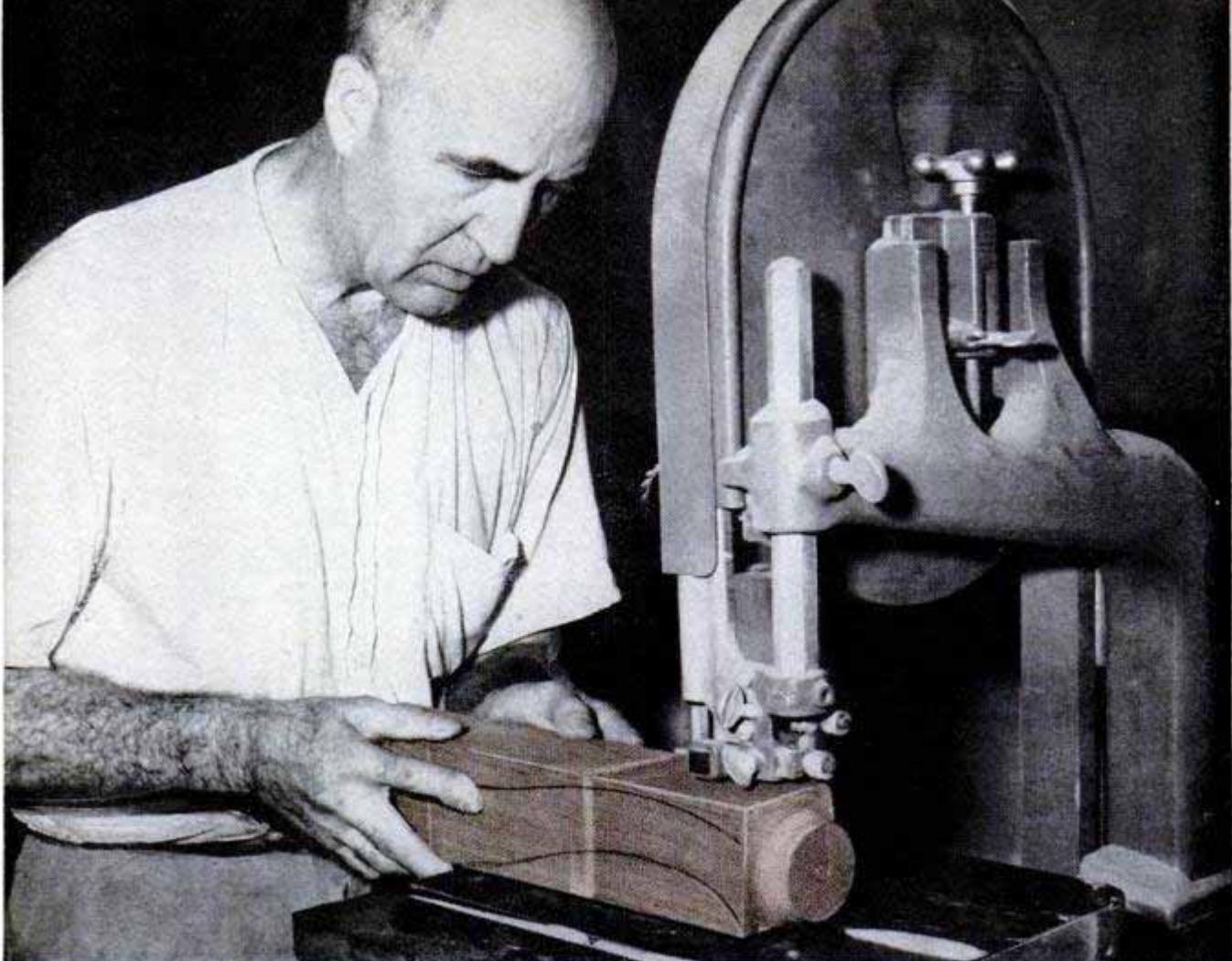


## **Featured at the '53 Boat Show**

More than a dozen companies sell outboard cruisers in varying stages of assembly from a full kit to a complete boat. These were among those shown at the National Motor Boat Show. Top left, out of the way under the rear deck is the motor on an 18-foot boat

Top right, there's no crowd in the cockpit of a 21-footer, sold as a kit. Center, it may not look like it, but there is an outboard in a well in the cockpit. Remote steering and motor controls are used on all models. Below, an all-aluminum outboard cruiser

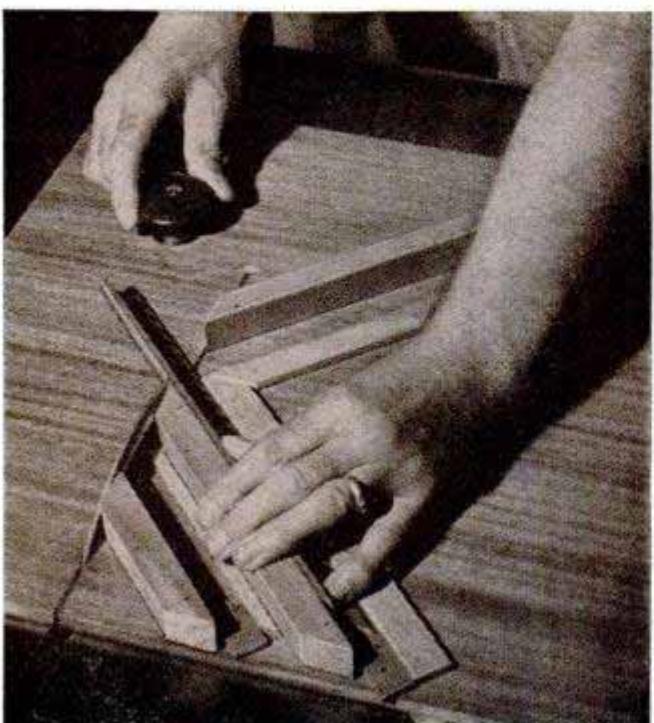




Though most of his work is done by hand, Works uses a bandsaw to shape a graceful leg for a coffee table

# "Antiques" From a Modern

Precise jig helps Works saw duplicate parts quickly and accurately without stopping to measure them



**By Walter E. Burton**

**I**N A FORMER schoolhouse at Five Forks, Va., cabinet woods are transformed into beautiful works of art. Here Donald C. Works fashions mahogany tea caddies and trays, cherry mirrors and other articles which are duplicates of antiques 200 years old.

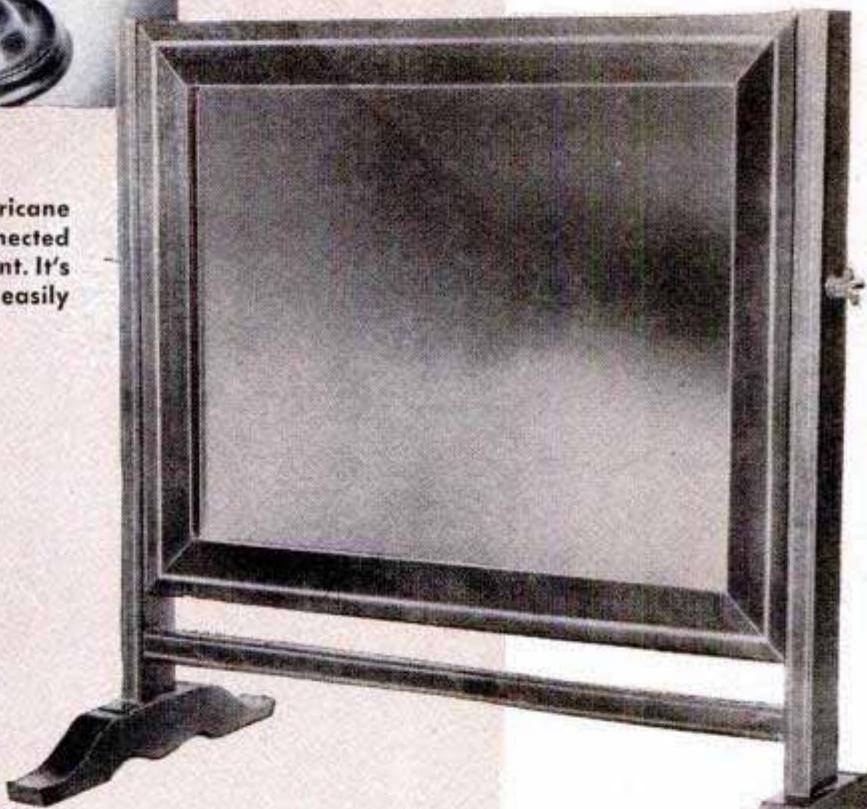
The reproductions from Works' workshop are not merely made to look like the originals; they are faithful copies of materials, joints, splines, shapes and sizes. Although he uses such modern aids as power tools and jigs for shaping many of the duplicate parts, each piece is essentially a hand-made reproduction.

In the 18th century, when the originals were made, cabinetmakers and woodworkers, un hurried by the demands of modern mass production, were real craftsmen. Their art is fading. Works has been unable to find many persons capable of duplicating the craftsmanship of the 18th century. He has been assisted at most by two employees



Base and stem of hurricane candleholder are connected by a threaded wood joint. It's tight but comes apart easily

# Shop

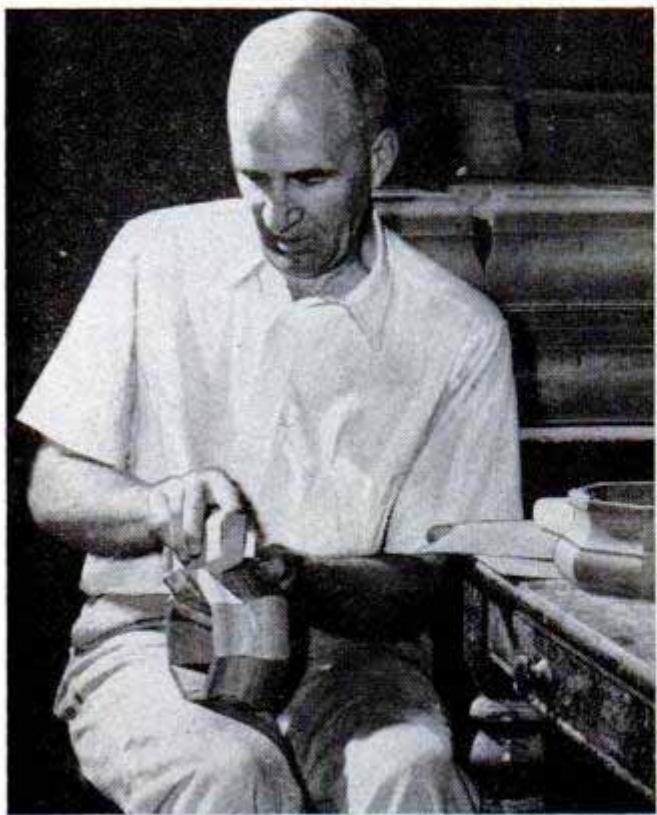


Works patterned this mahogany tea caddy after an original made in England about 1760. Parts are joined exactly the same way. Caddy now holds cigarettes. Below is one of his shaving mirrors



Below, another caddy has a handmade brass handle and lock like the original English box. Right, a real work of art is tray carved from single piece of wood





Craftsman does all the sanding by hand. In some cases he stains and finishes parts before assembling them

in trying to keep up with the flow of orders.

His home is evidence of his own unhurried work; it contains tables, desks and many wooden furnishings which look as if they had come directly from an 18th-century cabinet shop or from the colonial section of a museum. All were made by their owner.

Another reason for the high standard of craftsmanship in the products of the schoolhouse-shop is that they are made for the Reproduction Program of Colonial Williamsburg and must meet the rigid requirements of the crafts advisory committee which has charge of all craftwork sales at the restored first capital of Virginia.

Works is a middle-aged ex-Navy man. While attending the United States Naval

Spline joint, ready for the glue, is neat and strong



Academy he gained renown as a boxer, and at one time represented the United States in the Olympic games. He left naval service to go into business for himself. During World War II he re-entered the Navy and for a while was stationed at Camp Peary near Williamsburg. He liked that section of the country so well that when he again left the service, he and Mrs. Works made Virginia their home.

For many years cabinetmaking had been his chief hobby. When he acquired the old schoolhouse and near-by residence it was natural that he should convert the school building into a workshop. Eventually representatives of the Williamsburg Reproduction Program heard about his fine cabinet-work and entered into an agreement with him for the production of craft articles.

Works has developed a number of short cuts that help considerably in the production of duplicate articles. But he believes that construction features which have enabled wooden articles to survive in sound condition for 200 years and more are worth using today. Picking up a small mahogany tray he points to the splined-and-angled corner joints in the sloping side pieces.

"See those splines?" he says. "The mahogany pieces in this tray are only  $\frac{1}{8}$  inch thick, just as they were in the original. The corners of the original are still sound after 200 years, thanks to the splines in them. So I put the same kind of splines in my trays, and expect that they will hold together that long." The splines are thin strips of wood glued in saw cuts.

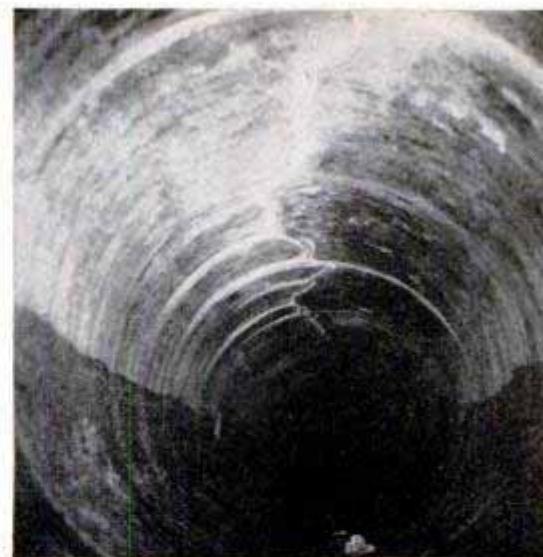
Works uses hot glue for assembling his wooden reproductions on the theory that an adhesive capable of doing its job over a couple of centuries is still worth employing.

For cutting duplicate parts he has developed a series of jigs that fit his circular saw and other tools. Whenever he wants to cut some segments of mahogany molding to form the sides of the octagonal tea caddy (a small box for holding tea), he merely selects the proper jig and mounts it on his saw table. He does not have to do any measuring or make critical adjustments, for such details are handled automatically by the jigs.

Another trick he employs is to finish the inside surfaces of tea caddies, boxes and similar articles before he cuts and assembles them. This is much easier than applying lacquer or paint to inside surfaces of finished articles.

For most of his products he uses mahogany, usually from Brazil. Stock for the tea caddies is first milled, like molding, to the proper curved contours. After the parts are assembled all surfaces are carefully hand-sanded. The caddies are lined with lead foil,

(Continued to page 250)



## Remote-Control Automatic Camera Inspects German Sewers

When German officials want to inspect the inside of underground drainpipes, they do it remotely with an automatic camera. The camera is sealed inside a housing mounted on a small sled. Four lights illuminate the walls of the pipe so defects can be spotted on the photographs. To take a

picture, the operator simply presses a button on a hand-held control box. If necessary, he can take six exposures per second. The camera has a capacity of 48 exposures before it has to be reloaded. The sled is pulled by a cable and will pass through pipelines only 10 inches in diameter.

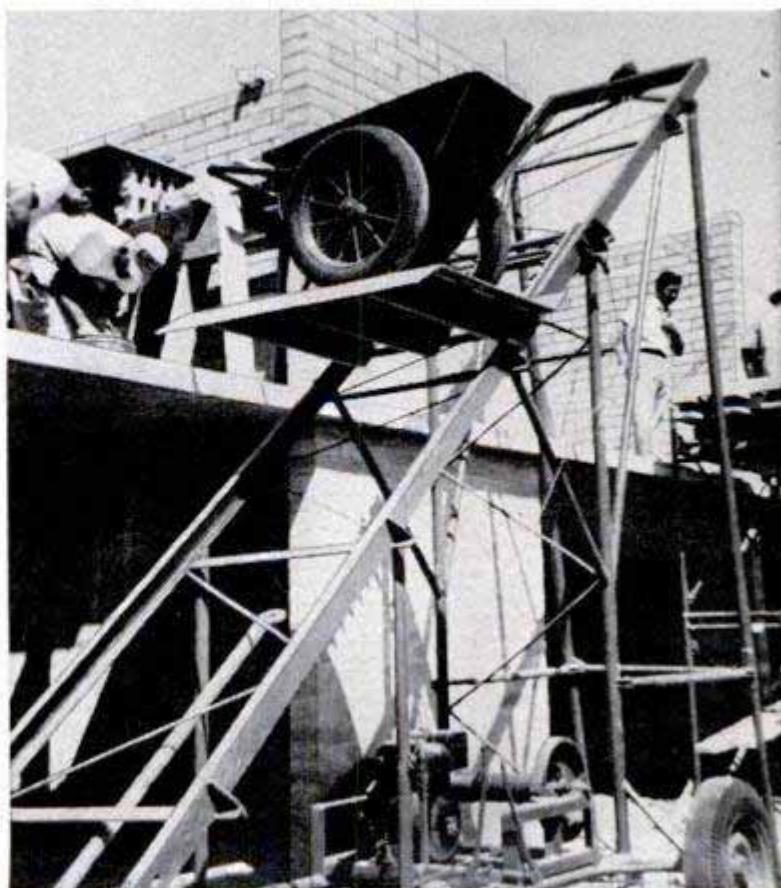
## Television Goes to Work for Sugar Plantations

Two Hawaiian sugar plantations will soon install closed-circuit TV systems in their cane mills to give technicians a constant view of the cane as it moves from cleaning plant to grinders. Mounted at a strategic point above the conveyor in each

plant, its lens shielded from dirt and spray, the camera would transmit a picture via coaxial cable to the control center. Efficient mill operations require that the cane be moved by the mechanical conveyors at the right speed and in proper quantities.

## Wheelbarrow Elevator Aids Construction

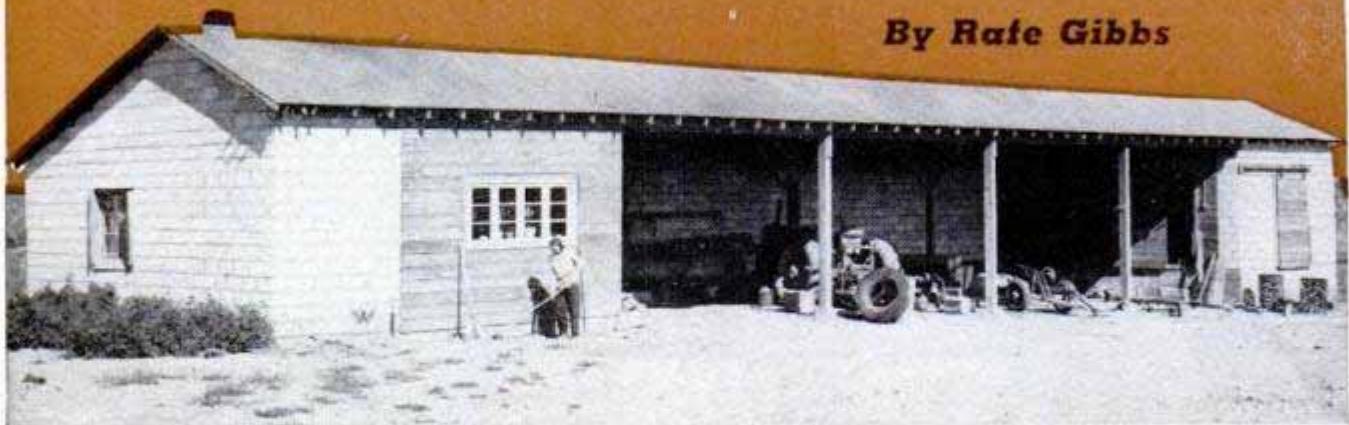
Time is saved and costs are cut at a Honolulu building project by the use of a slanting elevator which hoists concrete barrows and building materials to upper floors. A small one-cylinder motor turns a winch which draws the materials platform up an inclined track. Able to lift 3000 pounds, the apparatus is loaded and controlled by one man instead of the three needed to operate a block and tackle. Equipped with pneumatic tires, it can be moved with a minimum of effort.



Sources of available products described in this issue are indexed on pages 12, 14 and 16. Sources of further information on other articles are listed in the WHERE-TO-FIND-IT LIST, which is available to readers from Bureau of Information, Popular Mechanics Magazine, 200 East Ontario Street, Chicago 11

# Low-Cost Home on the Range

By Rafe Gibbs



Made of cinder block, this Oregon "special" will eventually provide two granaries as well as a machine shed

FOR THE MAN who wants a quick, low-cost home on rural acres or town lot, the "Agency Plains Special" developed out in Oregon holds convertible possibilities.

Primarily, the "special" is designed to provide the farmer with a temporary home, plus machine shed. Later it can be converted to all shed, or part shed and part granary. But the special has been intriguing the city man, too, with its possibilities for providing both low-cost home and garage—either permanent or temporary. If built on the back of a lot, the unit can become a ga-

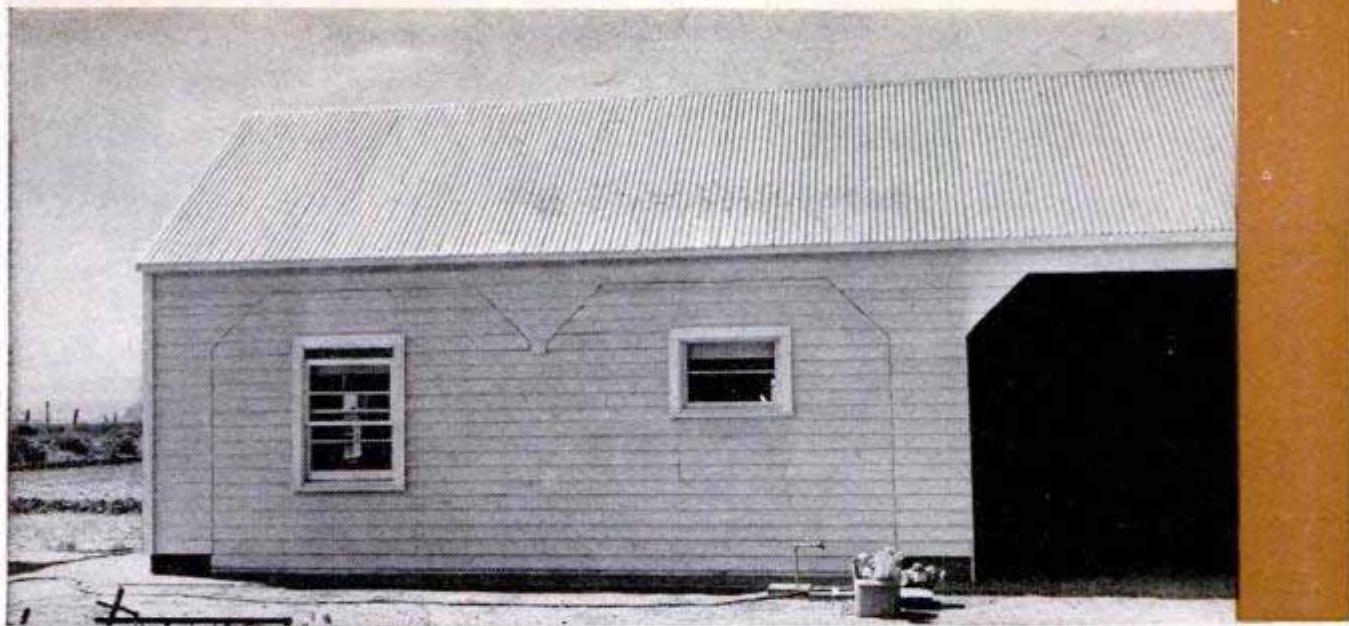
rage and workshop when a new home is constructed on the front of the lot.

The special is something that just sort of grew up after World War II on the Agency Plains of the Bureau of Reclamation's Deschutes irrigation project in Oregon. When water was brought to abandoned wheat land, many new farms appeared.

"That meant new homes and farm buildings were needed in a hurry and at low cost," explained Merle L. Tillery of the Bureau of Reclamation. "The special was the natural answer."

Knotty pine such as this furnishes an attractive interior finish for \$2000 to \$3000 convertible buildings





Filled-in doors indicate the owner plans future use of the living quarters as a double garage. Drop siding is a popular material and most of the Deschutes project's roofs are of corrugated aluminum

The average building that sprang up on the project was 80 by 24 feet, with a 24-foot square devoted to living quarters. These quarters were usually designed to provide two bedrooms, living room, kitchen and bathroom. Not big rooms, but very livable.

The first specials constructed cost only about \$2000. Then two things happened: Cost of materials and labor went up, and folks got to adding a few de luxe features. Now the cost of an 80-foot-wide unit usually runs above \$3000. The price tapers down for smaller units such as the city man would construct.

Oddly enough, the open or shed part of the building adds interest to what is otherwise a very simple design. This, and low cost, appeals especially to the city man.

The farmer is primarily concerned with having a place for his equipment as well as for his family. As many units as needed can be added to take care of the equipment

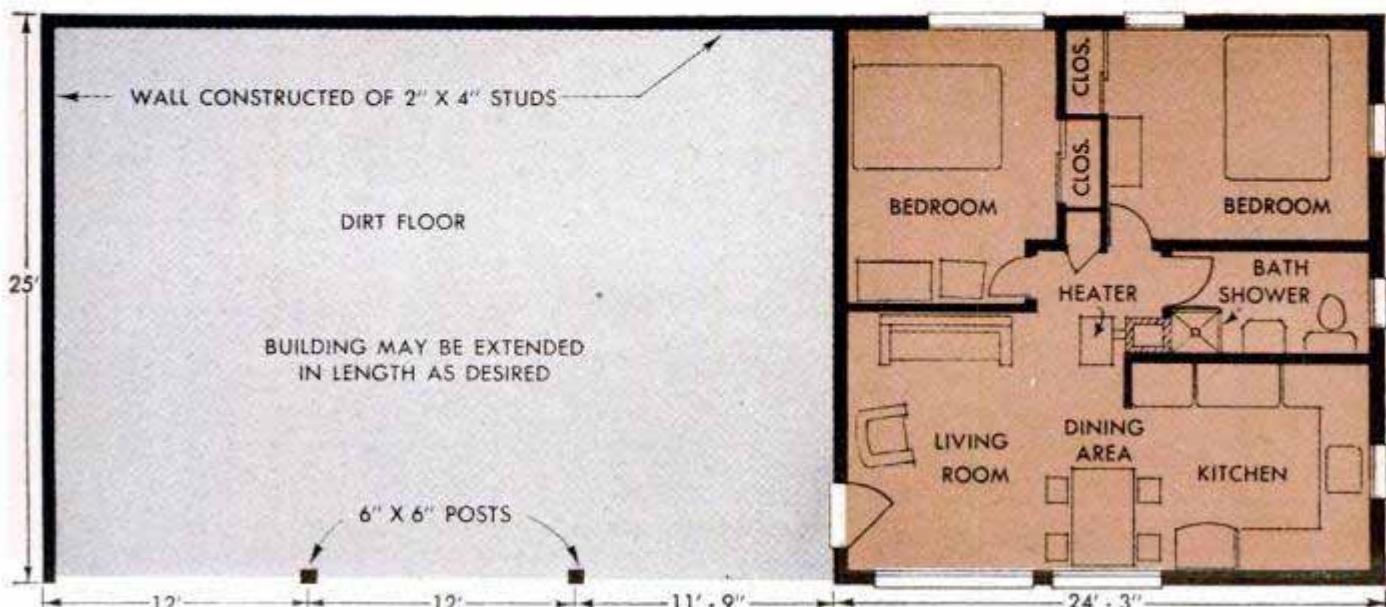
and provide feed storage. Some farmers have built living quarters on one end and a granary on the other, with machine shed in the center.

The Deschutes farmers have been pretty well divided on the use of drop siding and cinder blocks. The most popular roofs are those of corrugated aluminum. Interior walls of living quarters run from plasterboard to knotty pine.

"The quality of the finishing should depend on the number of years anticipated for use of the living quarters as such," said Tillery. "The tendency is to overdo the living quarters, even though they are intended to be only temporary."

Some living quarters have been completely insulated, and have an air of permanence. In others, however, what will later be garage-door openings have even been cut out, then filled with siding which can be taken off easily. ★★★

**Most plans call for four main rooms within the approximately 24-foot-square living area of a special**





Retracted roof panels transform living room into a sunny, open-air patio. Single electric motor does the work

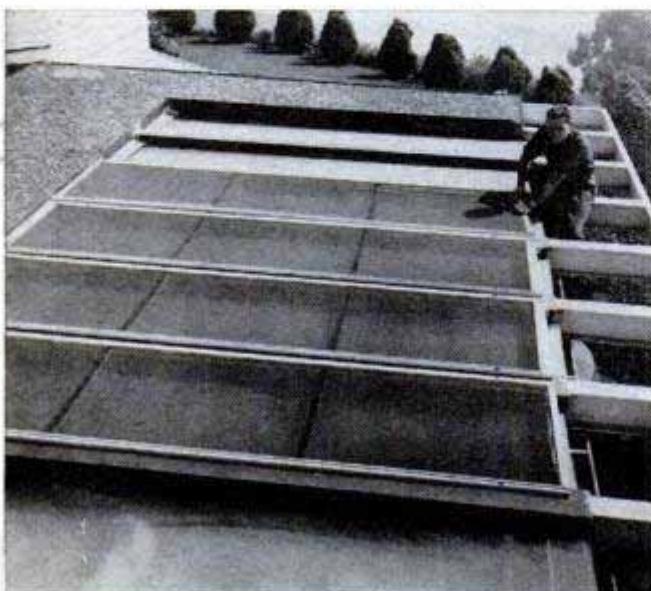
## "Convertible" Living Room Features Slide-Away Roof

MEMBERS OF a California family can dine under the stars or picnic under a blue summer sky without ever leaving the house. A push of a wall button slides back four glass panels which form a large portion of the living-dining-room roof. Together with two walls of clear glass, the open roof provides a feeling of being out-of-doors while enjoy-

ing all the comforts of home. The translucent panels, three feet wide and 12 feet long, are chain-operated by a single electric motor and retract simultaneously into the solid portion of the flat roof. Bamboo screening is pulled out below the panels for daytime sun-control. When closed, the glass roof is completely waterproof.

Overhead screens protect roof openings from leaves and insects. Panels retract into solid portion at left

Ceiling is low enough for easy cleaning or repair. Slide-out bamboo screens provide shade on sunny days

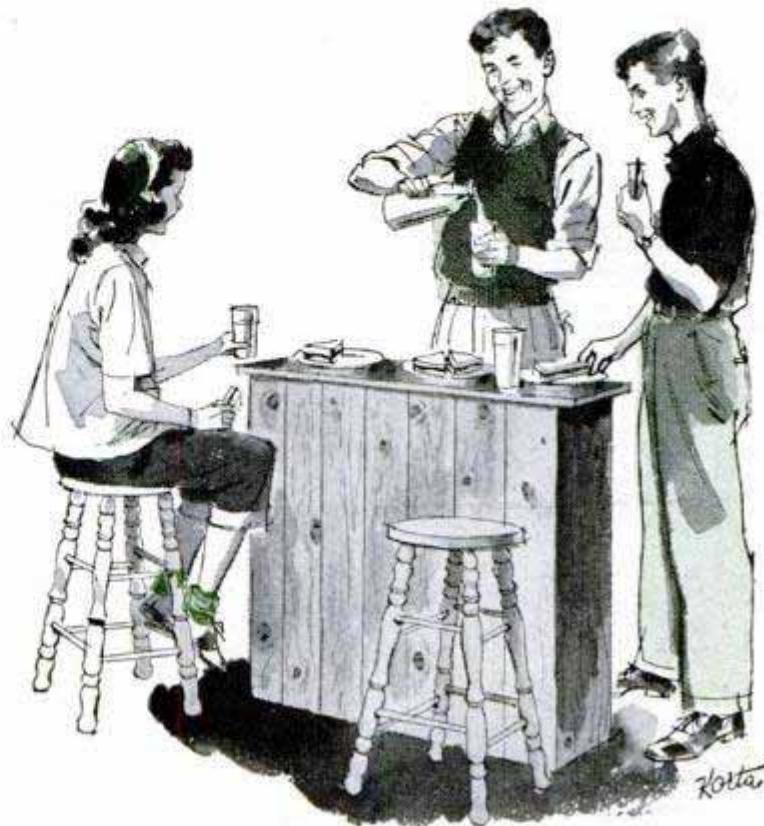


# the POPULAR MECHANICS CRAFTSMAN

## BOOKSHELF TURNS SNACK BAR

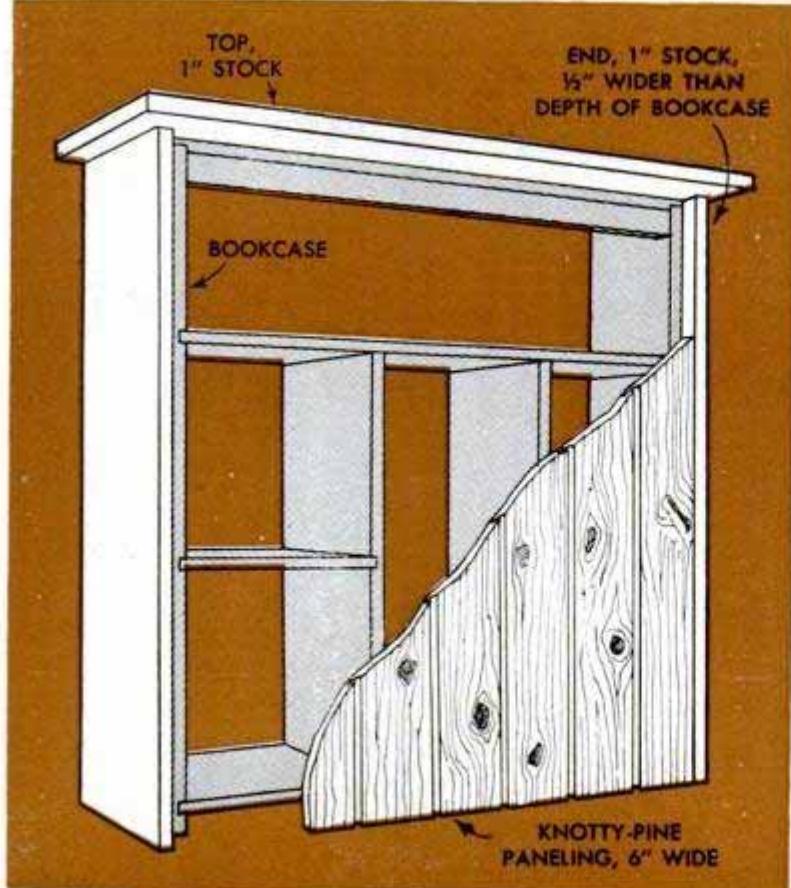
THE SAW-AND-HAMMER craftsman especially will go for the simplicity of this smart-looking snack bar, for half the job is already done by using an open-type bookshelf to provide the interior shelves. It makes an ideal one-evening project, as all that is required to convert the bookshelf into a snack bar is to face the front with knotty-pine paneling and cover the top and ends with plain 1-in. boards. E. L. Fisher of Milwaukee, Wis., made the bar pictured below by

starting with a 9 x 36 x 36-in. bookshelf as the basic structure. If you don't happen to have a bookshelf, you'll be ahead by purchasing an inexpensive, unpainted one at a department store. Figure out the number of boards you'll need to cover your particular shelf, picking out select tongue-



and-groove material in which the knots are uniformly distributed. The cutaway drawing on the following page shows how the end boards are allowed to project at the front to cover the edges of the knotty-pine boards. Use boards of uniform width or at least space them so that the two outside





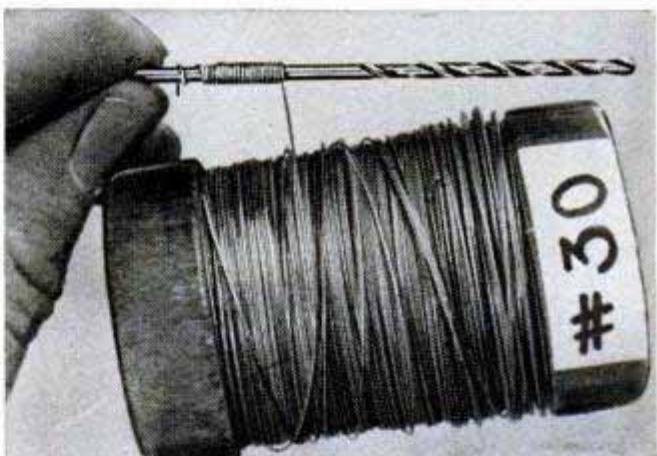
boards are of nearly equal width. The tongue on the starting face board will have to be cut off to make a flush, butt joint with the piece covering the end. Allow the snack-bar top to overhang the ends and the front, and in nailing the top and ends to the bookshelf, use short nails so they do not extend all the way through. Beveled edges on the knotty-pine paneling provide V-joints on the face of the bar to relieve the plain front. The top of the bar may be covered with oilcloth or linoleum and the edges trimmed with regular stainless-steel counter-top edging. A piece of decorative laminate may be cemented to the top to give a durable surface that can be cleaned quickly. It is best to line the shelves with oilcloth or plastic fabric. To retain the natural finish of knotty pine, apply a wash coat of clear shellac, rubbing it when dry with fine steel wool and then follow with wax.

★★★

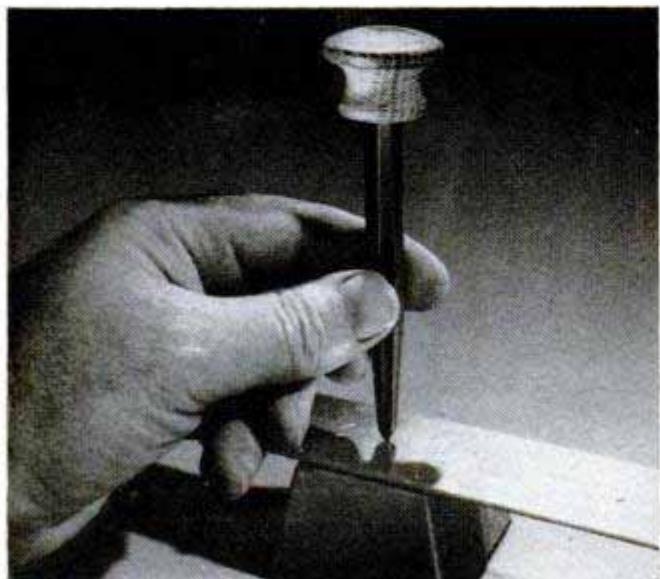
## Adapter Sleeves Increase Size of Undersized Bit Shanks

When a hand-type grinding tool requires different collets for  $\frac{1}{8}$  and  $\frac{3}{16}$ -in. shanked tools, save time by fitting the undersized tools with adapter sleeves so both sizes can be chucked in the  $\frac{1}{8}$ -in. collet. The sleeve, which is No. 30 soft-iron wire wound around a  $\frac{5}{64}$ -in. drill shank to form a closely wound coil  $\frac{3}{8}$  in. long, is twisted on the shaft in the opposite direction of the winding, causing it to expand as it slips over the shank. This provides a perfectly aligned  $\frac{1}{8}$ -in. sleeve which grips the shank securely and increases its diameter.

Andrew Brennan, Philadelphia, Pa.



## Wooden Drawer Pull Protects Hand Used to Strike Center Punch



When center-punching thin sheet metal by striking the punch with the heel or palm of the hand, a drawer pull fitted over the end of the tool as shown will protect the hand. Drill the underside of the knob to fit snugly over the end of the punch.

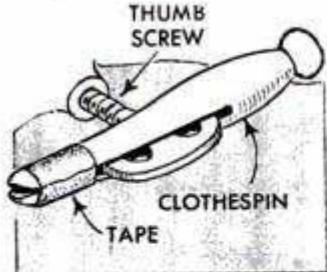
Ken Murray, Colon, Mich.

## Handle for Yardstick

A yardstick used at a blackboard or for measuring rooms will be easier to manipulate singlehandedly while drawing lines or marking distances if a drawer pull is attached in the center. Screws are countersunk on the side opposite the handle and ground flush on an emery wheel.

E. V. Reyner, Townsend, Mont.

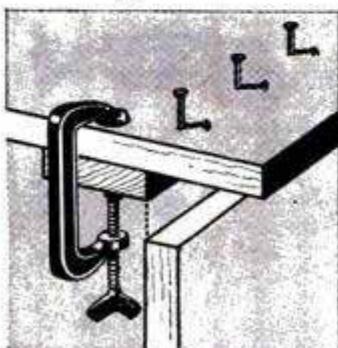
## Improvised Thumbscrew "Wrench"



press the legs together. If this isn't sufficient, wind two or three turns of adhesive tape around the ends of the legs as shown.

G. E. Hendrickson, Argyle, Wis.

## Nailing Boards at Right Angles



When nailing long boards together, set them on edge and square at the corners of a box for nailing.

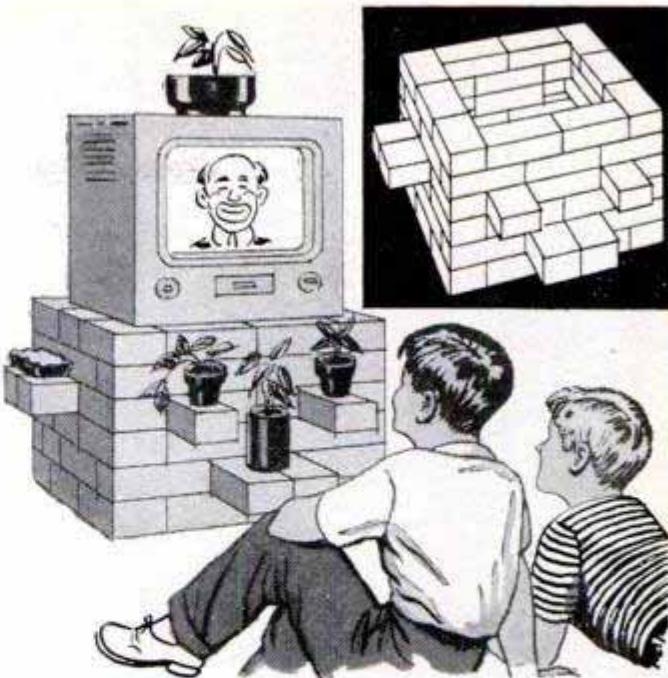
Dick Hutchinson, San Gabriel, Calif.

## Rubber Patch Cemented to Heels Prevents Wear Along Edges

Run-over heels on shoes can be prevented by cutting out small pieces of inner tube and cementing one to the outer edge of each heel to serve as heelplates. The portion of heel surface to be covered as well as one side of the plate is roughened with the sharp edge of a knife blade. Following this, a thin coating of weather-strip cement is applied with a knife or small spatula. After the cement becomes tacky, the plate is pressed against the heel and the outer edge trimmed even with the edge of the heel if necessary.



In an emergency, a common clothespin will come in handy for loosening or tightening a thumbscrew. Slip the pin over the head of the screw and



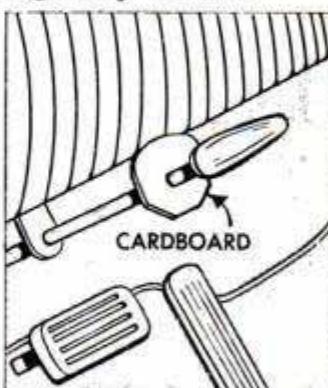
## Unusual Stand for Television Set Formed With Loose Bricks

Designed for rooms in which a touch of modern decor is desired, this attractive and unusual stand for a table-model television set is made entirely of brick. No mortar is used since the bricks are stacked squarely on each other and held in place by their own weight. Any type of brick can be used, but colored face brick and the modern long, thinner brick will lend more to the design than will the common type. Care should be taken in selecting the brick to see that only those with undamaged edges and corners are used, because of both appearance and stability. Projecting bricks may be used as shelves to hold flowers, cigarette trays or knickknacks.

Walter L. White, Chicago.

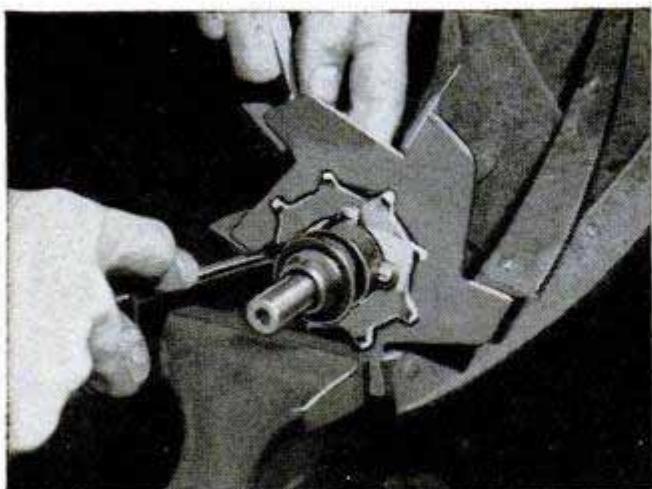
## Colored Cardboard Tab on Lever Warns of Set Emergency Brake

On certain makes of cars it's possible to install a simple indicator which will call attention to the fact that the emergency brake is on. A bright-colored cardboard tab is fitted to the brake lever just below the handle where, when the brake is off, it is almost completely hidden under the dashboard. However, when the brake lever is pulled out, the tab is plainly visible and serves as a warning to the driver. Simply slot the cardboard to fit over the lever shaft and tape it in place.

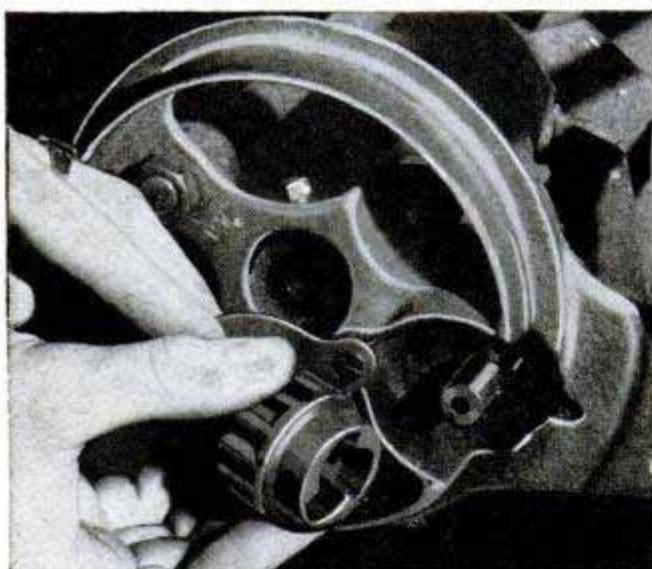


# Electric Drill

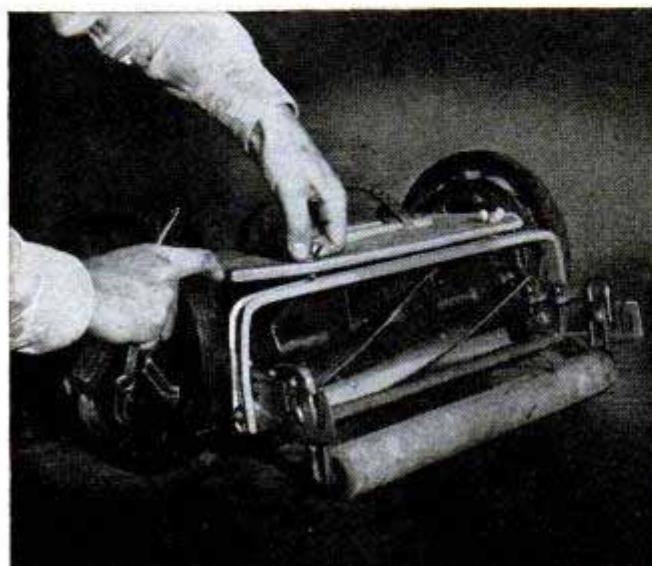
# POWERS



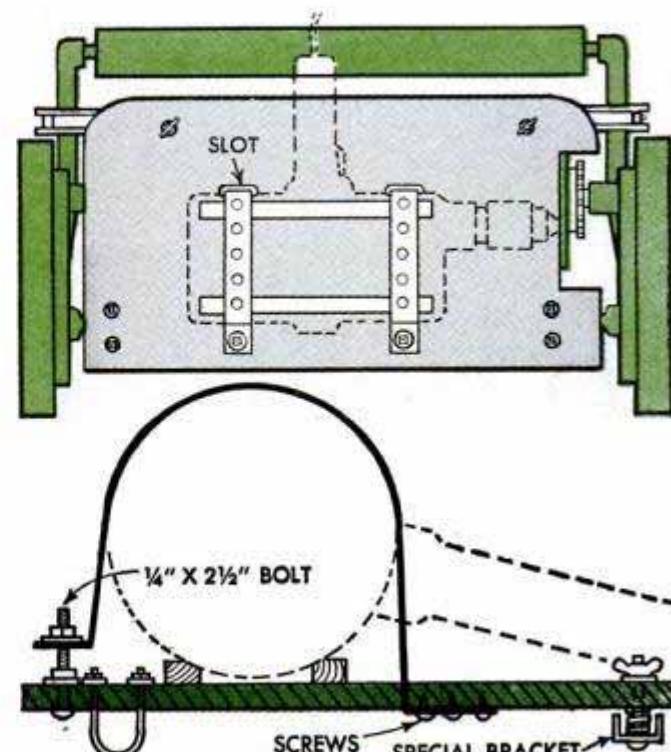
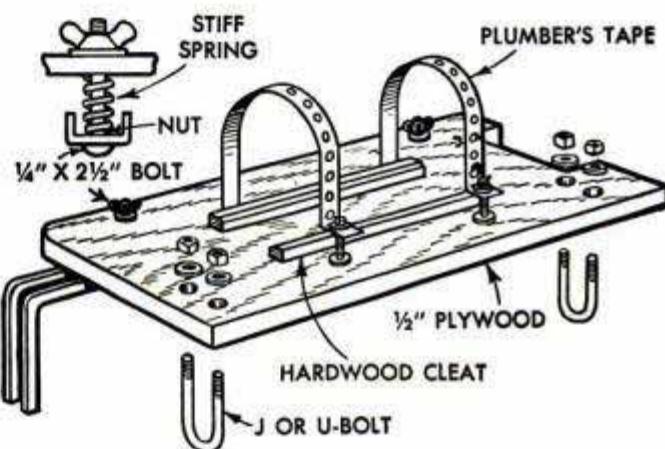
The driven sprocket can be bolted to a sheet-metal reel spider with a hardwood spacer between. Cast reel spiders may require the use of J or U-bolts



Above, interchanging pawl pinions permits reel to drive mower wheels forward. Below, motor base is spring-mounted to bracket bolted to mower frame



IF YOU HAVE a portable electric drill of  $\frac{1}{2}$ -in. capacity and a no-load chuck speed of 300 to 500 r.p.m., put it to work on your lawn mower or rotary garden cultivator. Only a quality drill that can stand continuous operation should be used. It's a fairly simple job to convert the mower or the cultivator for driving with the drill. The latter is mounted similarly in both cases, and can be interchanged between the two machines or removed for normal use in just a few minutes. Essential steps in the conversions will be clear from the accompanying photos and details. Two bicycle rear-wheel sprockets and a short length of roller chain are needed for the mower conversion, but only the large sprocket from a child's bike is needed for the cultivator, as the same drive sprocket

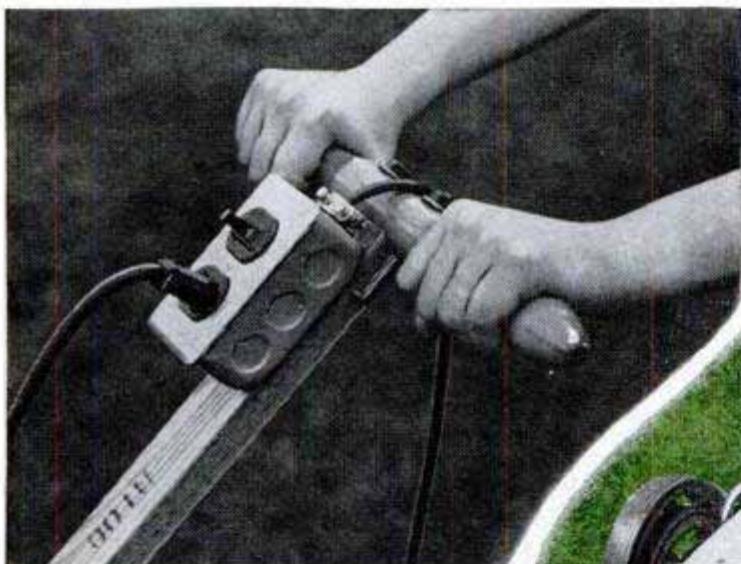


# MOWER

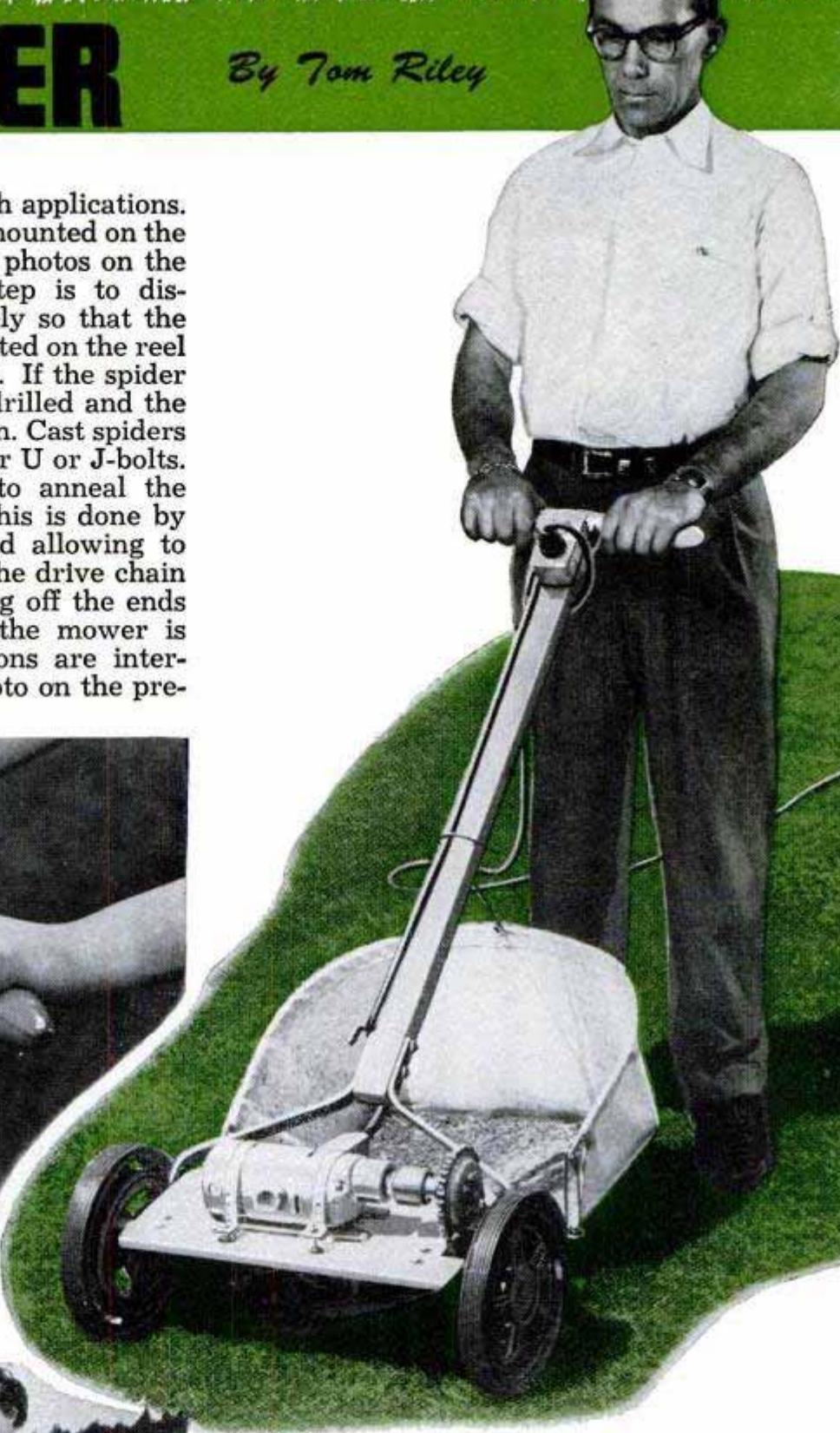
By Tom Riley

is utilized on the drill in both applications.

The electric-drill drive is mounted on the mower as in the details and photos on the opposite page. The first step is to dismantle the mower completely so that the driven sprocket can be mounted on the reel spider as in the upper photo. If the spider is of sheet metal, it can be drilled and the sprocket bolted to it as shown. Cast spiders may require the use of either U or J-bolts. It also may be necessary to anneal the sprockets before drilling. This is done by heating to a cherry red and allowing to cool slowly. Clearance for the drive chain probably will require cutting off the ends of the reel blades. When the mower is reassembled, the pawl pinions are interchanged as in the center photo on the pre-

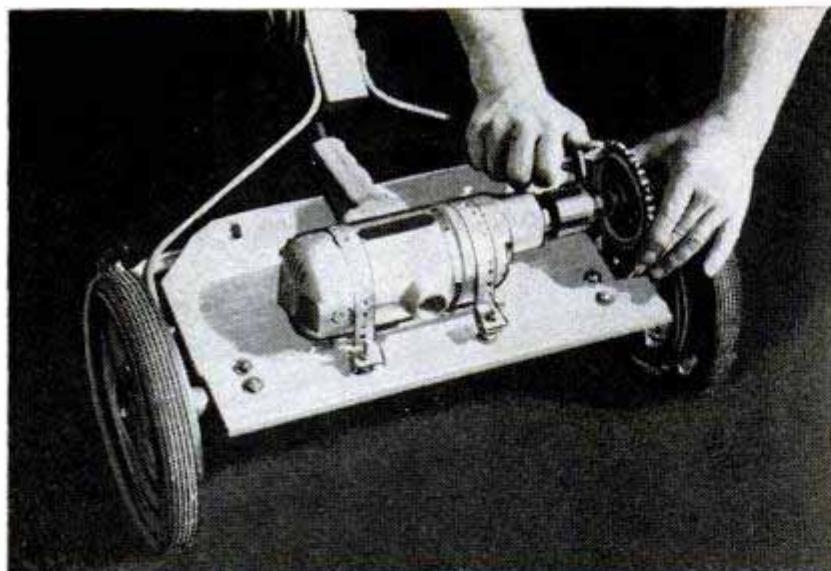


Motor is controlled by combination switch outlets mounted on mower and cultivator handles



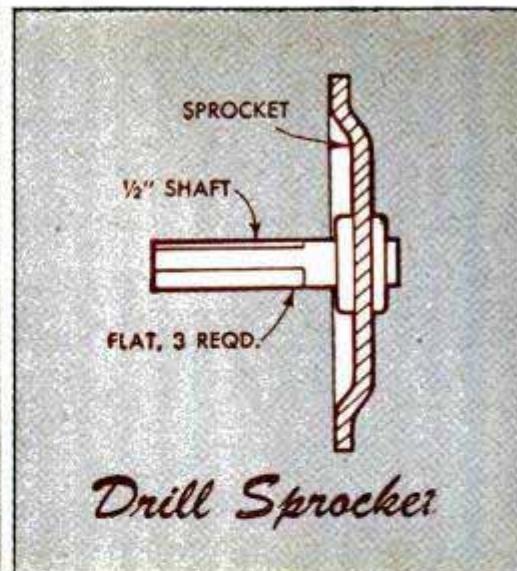
ceding page. This change permits the driven reel to turn the mower wheels in the forward direction. On some mowers an adjusting screw permits locking of the pawls without interchanging.

The plywood base supporting the drill must be adapted to the mower. It is attached with U-bolts to the shrub bar at the front of the mower and is supported at the rear on a U-shaped bracket of 1-in. steel channel. Note the spring mounting of the plywood base as shown in the lower detail on the opposite page. This assembly



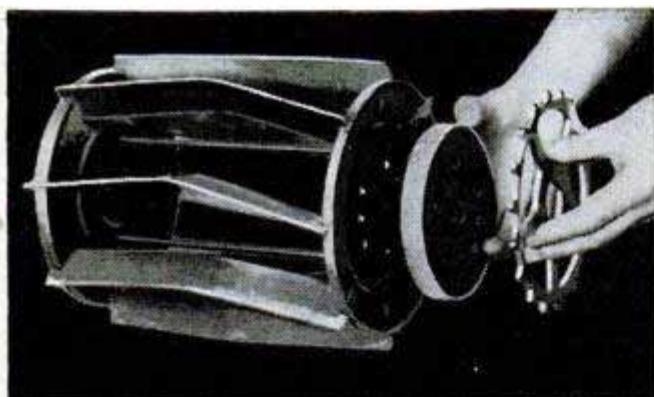
**Sprockets must be in line when mounting motor on mower or cultivator. Misalignment causes power loss**

permits close adjustment of the chain tension. The drive sprocket, which is chucked in the drill, is attached to a short spindle as in the detail above. Note that three equidistant flats are milled or filed on the spindle to prevent slippage of the drill chuck. When mounting the drill with perforated pipe tape as detailed, be sure that the sprockets are in line, as otherwise there

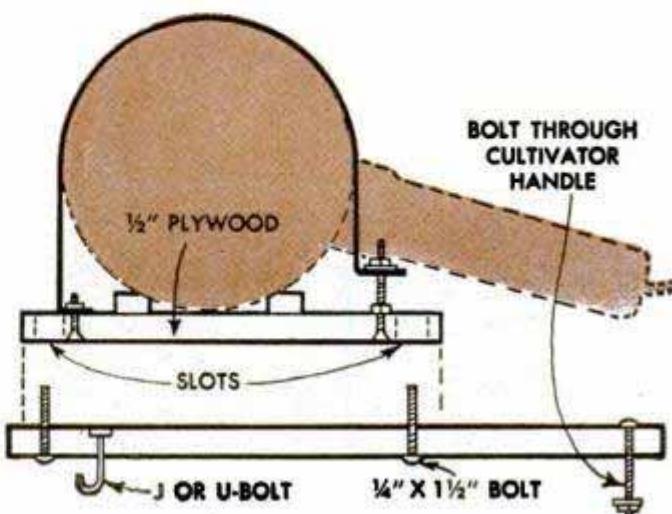
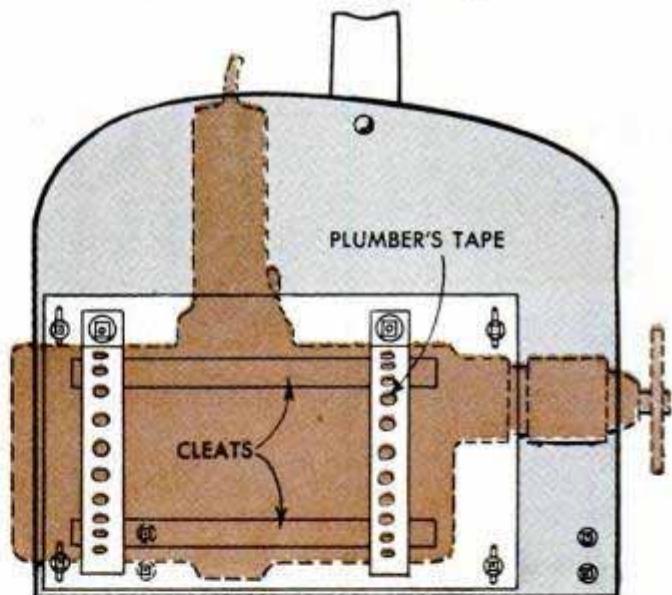
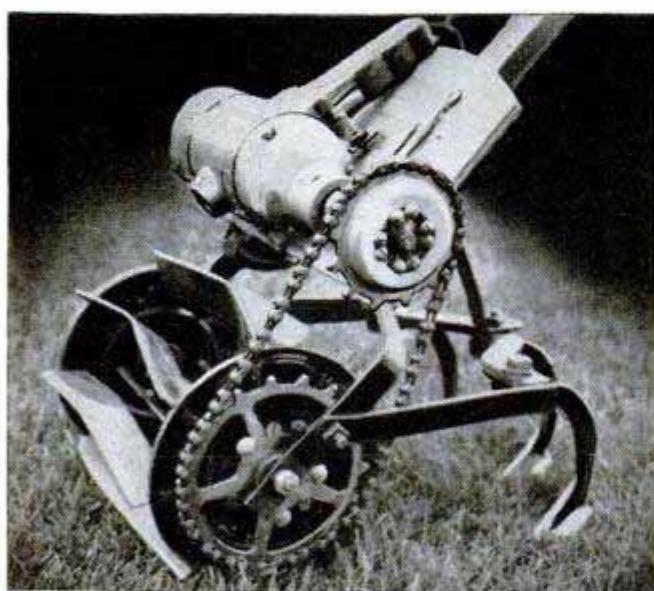


*Drill Sprocket*

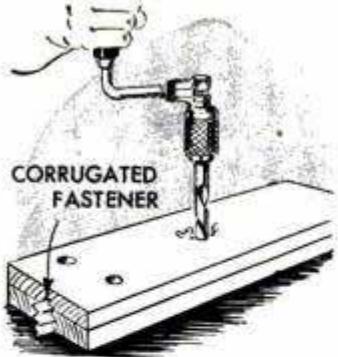
will be an appreciable power loss. To control the drill motor, outlet boxes are mounted on the handles of both the mower and cultivator, and the power cord is connected to a combination switch-outlet unit mounted in each box. The details and photos below show how the motor and driven sprocket are mounted on a rotary cultivator. The sprocket is bolted to the cultivator reel over a spacer. A crank sprocket from a child's bike is just right. ★★★



Above, sprocket from child's-size bike is bolted to cultivator drum, using hardwood spacer. Below, same drive sprocket is used on both mower and cultivator



## Fastener Used as Clamp



CORRUGATED  
FASTENER

When working in the shop, it is often necessary to bore matching holes in two pieces of wood. To do this quickly, drive a corrugated fastener part way into each end in the manner shown.

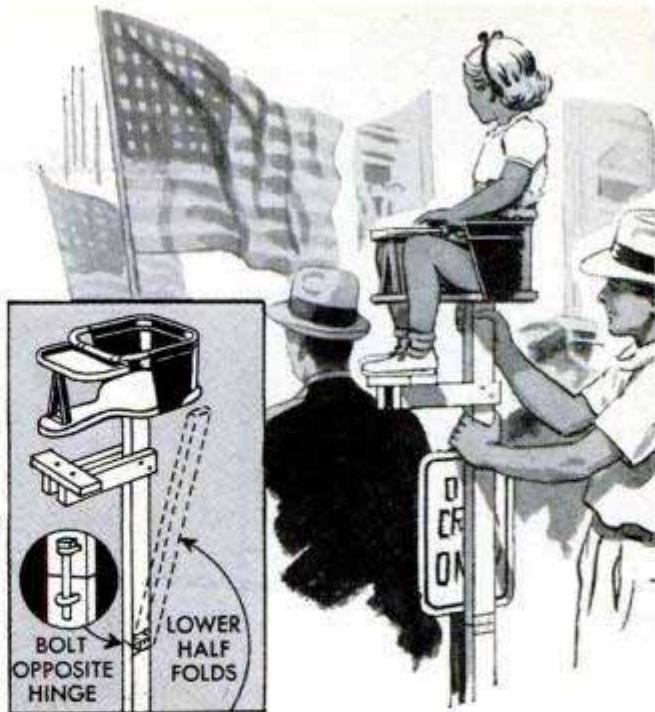
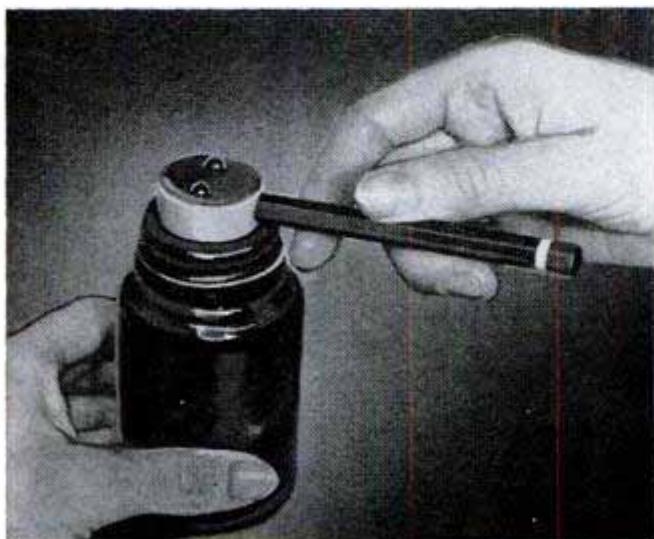
## Drive Belt for Toy Motor Formed With Friction Tape

An endless belt suitable for temporary use with a toy electric motor can be improvised quickly from a strip of friction tape. Cut to the length required, add another inch for splicing the ends and twist all but the extra portion to form a round belt. After fitting the belt around the pulleys, wrap the open end around the other and press them together tightly. Only temporary at best, the splice can be strengthened further by applying rubber cement to the two ends before joining them together, and also by coating cement that has become tacky over the completed splice.

## Inexpensive Pencil Sharpener Mounted on Small Jar

An inexpensive, desk pencil sharpener can be made easily with a 10-cent pocket sharpener and a 4-oz. widemouthed glass container. First cut an elongated slot in the screw cap of the container to accommodate the blade of the sharpener. Then drill two small holes in the sharpener, with corresponding holes in the screw cap and assemble with machine screws. The blade of the sharpener should face down so that pencil shavings are caught in the container and disposed of easily.

John J. Rea, Urbana, Ill.



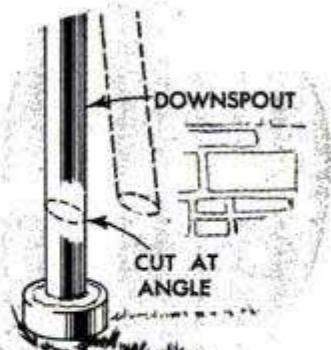
## Perch Made From Baby Stroller Provides Child View of Parade

To provide his child with an unobstructed view of a parade, one father attached part of a discarded baby stroller to hinged lengths of 2 x 4s to form a perch that overlooked the heads of crowds lining the sidewalks. A footrest made from scrap stock was nailed at right angles to the upper supporting member. In use, the perch is rested against a traffic sign or a lamppost and a long bolt inserted through screw eyes opposite the hinge as shown to prevent the collapse of the support. To simplify transporting and storing, the lower half of the support folds against the upper half.

Mark Wienand, Olympia, Wash.

## Cleaning Clogged Downspouts

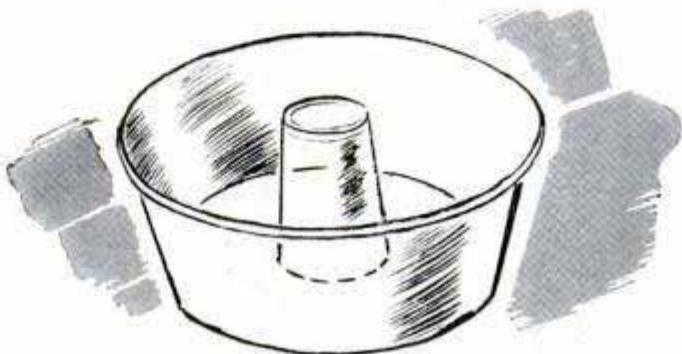
A downspout clogged with leaves and twigs presents a problem, since the accumulation should not be flushed into the drain, and lifting the spout for cleaning may not be practical. One method of solving this problem is to saw the downspout in two at an angle, so that it can be swung out for cleaning. After cleaning, the sawed edges are brought together and wrapped with several layers of medical gauze. White lead is worked into the gauze to preserve the "bandage" and to make the joint watertight.—Ed Packer, Chicago.



# Solving HOME PROBLEMS



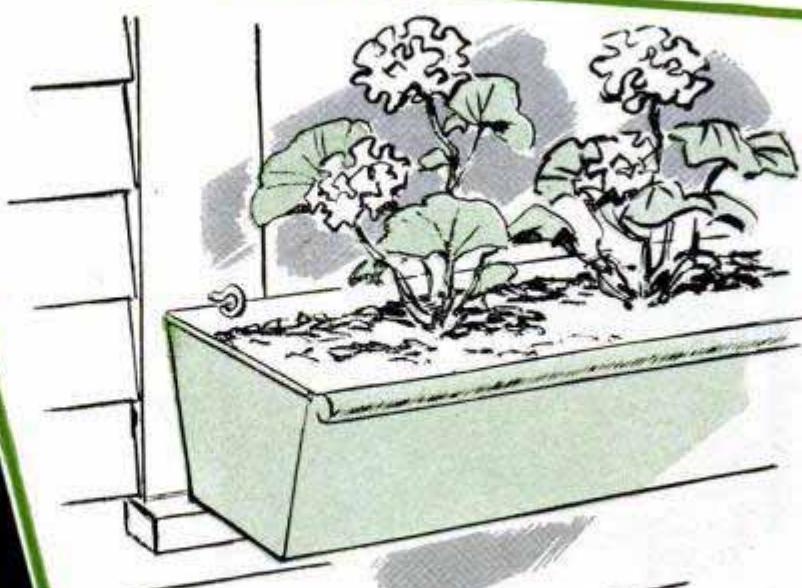
WHEN ADJUSTABLE WINDOW SCREENS do not fit snugly inside the frames, edges of the screens may be covered with rubber tubing to keep out insects. Slit tubing lengthwise, as above



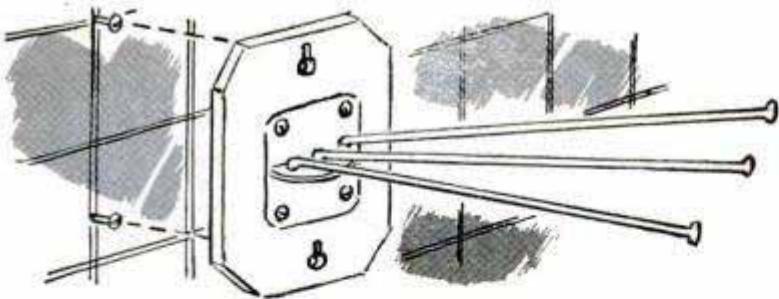
SUBSTITUTE ANGEL-CAKE PAN is set up quickly by inverting a tumbler in the center of a deep pan. The tumbler should be of metal or heatproof glass



VACUUM BOTTLE is filled easily without spilling beverage by using disposable funnel improvised from a paper drinking cup. The end of the cone-shaped cup is cut off to form a spout as pictured below



USE LARGE SCREW EYES as turn buttons to hold a sheet-metal flower box on a window sill. The screw eyes, driven into the window frame, are easily turned to engage or release the edge of the flower box

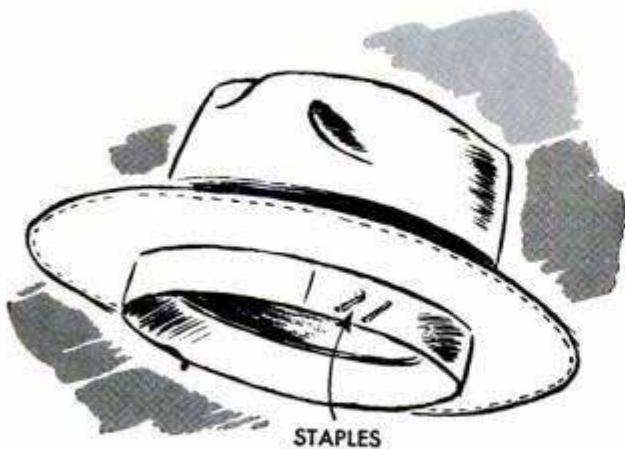


**EXTRA TOWEL RACK** may be removed from wall when not in use if mounted on plywood panel having two keyhole slots. Slots engage roundheaded screws driven into wall

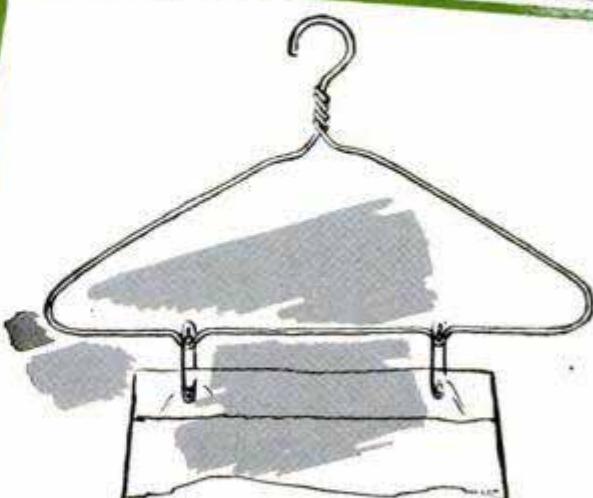


**RUBBER KNEELING PAD** for working in garden is made from sections of tire casing. Slots cut in sections form handle and casing is drilled so the two parts may be wired together or tied with heavy twine

**TO ELIMINATE GUESSWORK** when adjusting wall pictures, align the frames vertically with a weighted length of string. Hold the end of the string at a top corner of the frame, as below, so the weight hangs below the bottom of the frame. A pair of scissors serves as a weight



**WIRE STAPLES** of type used for clipping papers together may be driven into sweatband of hat for quick identification. Staples are arranged to form symbols or owner's initials



**SKIRTS PINNED TO COAT HANGERS** won't pull together and wrinkle if the lower wire of each hanger is crimped at two points as shown above

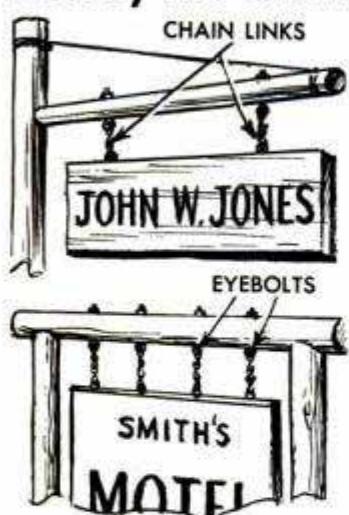


### Wooden Block Provides Means Of Storing Fishing Leaders

A storage block for snelled fishhooks or leaders can be made from a scrap of wood and a few finishing nails. The nails are driven into one side of the block, the heads cut off and the nails bent slightly. In use, the fishhooks are stuck into the block and the leaders are stretched around the end of the block and fitted over the nails. They will stretch enough to make a snug fit.

R. A. Lossie, St. Paul, Minn.

### Signs Suspended in Rustic Frames Held by Tire-Chain Links



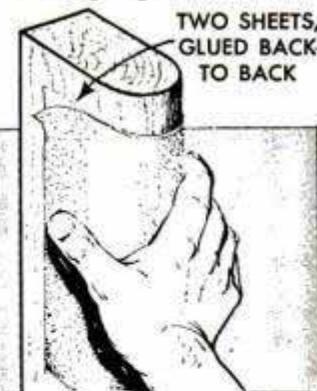
be suspended beneath a horizontal member extending from a single upright and braced with wire or light cable. The links are attached by spreading the ends and closing them on eyebolts in the posts or frame as well as on screw eyes driven into the sign.

Nick Mocharniuk, New York City.

### Nonslip Back for Sandpaper

To prevent the hand from sliding off the back of a sheet of sandpaper while working, glue two sheets back-to-back. The side facing up will then provide a nonslip surface for the hand. A few dabs of glue are sufficient to hold the sheets together, and when one side is worn the paper may be turned over.

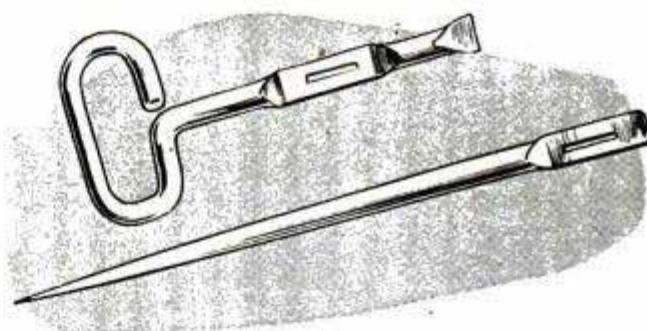
Arthur Trauffer, McClelland, Iowa.



### Heavy Cloth Mended With Needle Made From Can-Opening Key

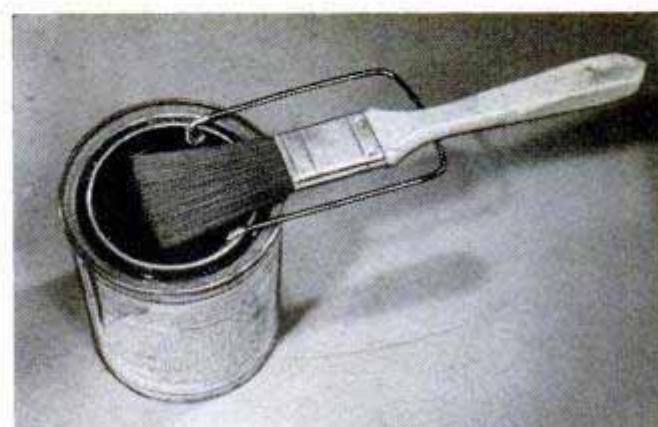
Lacking a large needle for sewing several torn awnings, a homeowner improvised one from a key-type can opener. After cutting off the tip beyond the slot in the manner indicated, the handle was straightened and ground to a long tapering point on the end.

William H. Henkel, New Orleans, La.



### Wire Rest Holds Brush Over Pail

This simple paintbrush rest holds the brush over the pail when it is not in use, and yet does not interfere with the pail opening. Made from a length of coat-hanger wire, the body of the rest is bent in a long U-shape and the ends are fashioned into hooks that grip the lip of the pail.

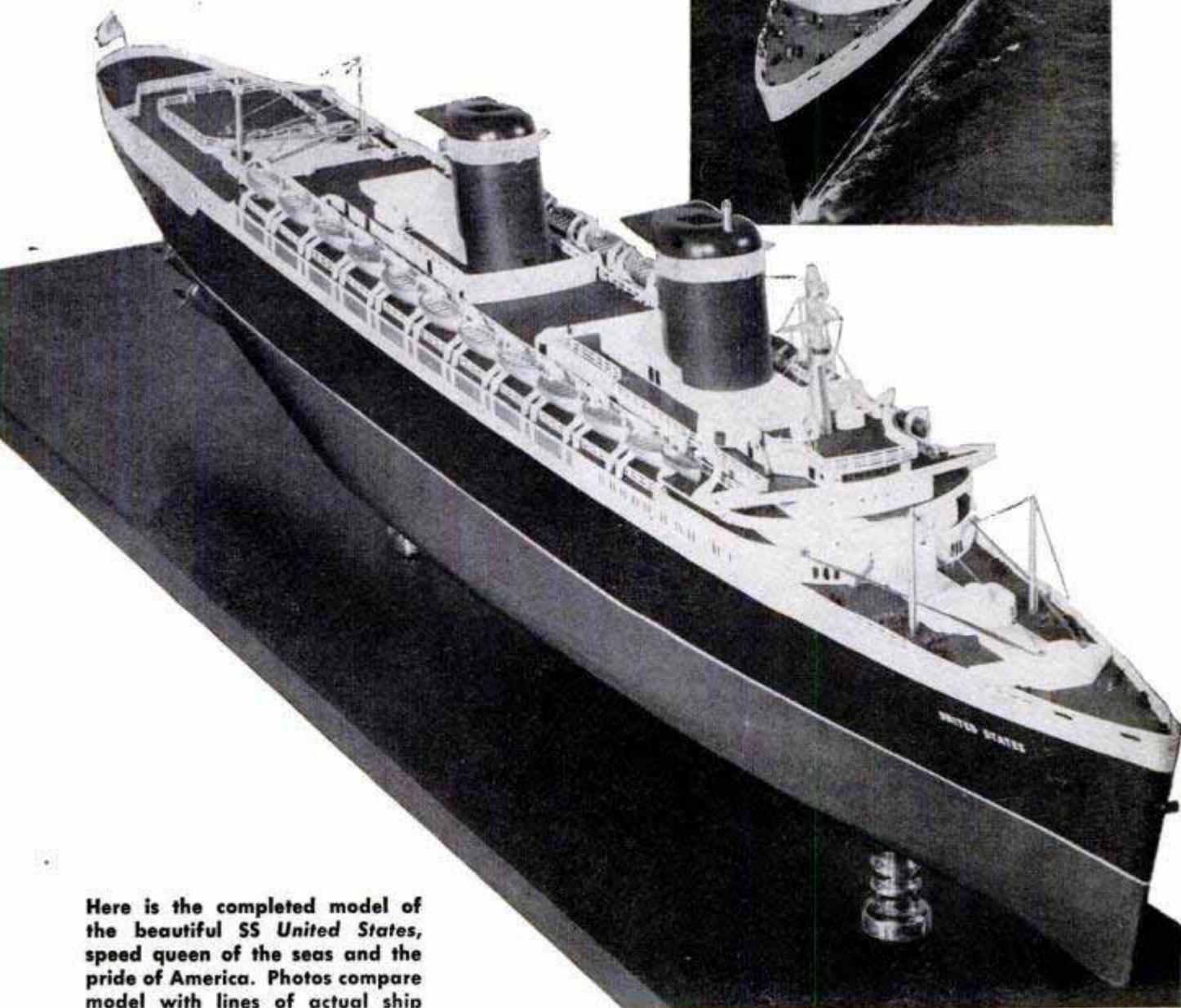


# 36-in. Model of the **SS UNITED STATES**

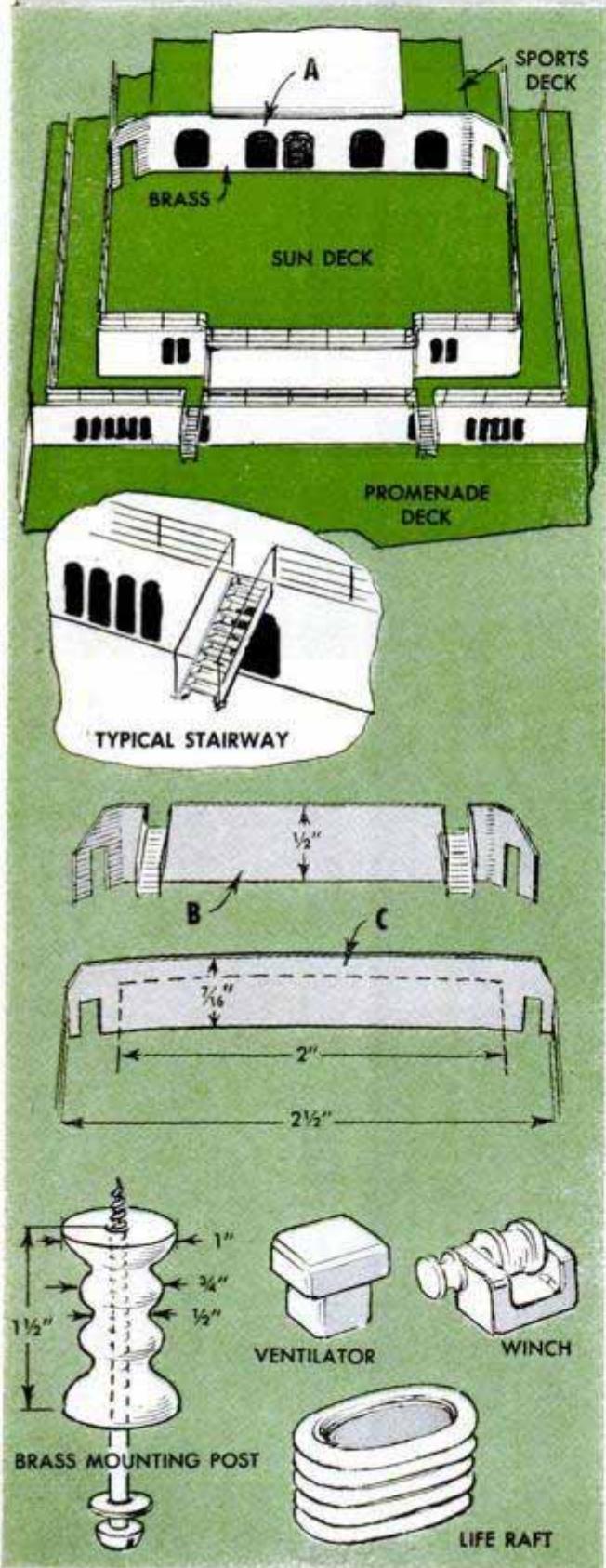
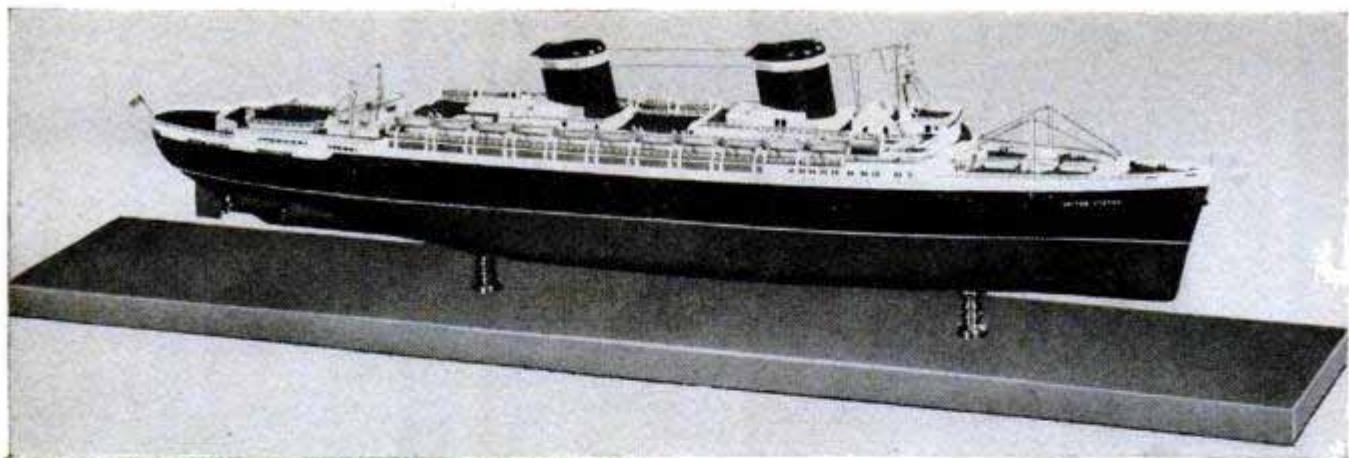
SOON YOUR scale model of America's mighty \$70,000,000 luxury liner, the *SS United States*, will be completed and under glass for all your friends to admire. In this concluding installment you will be shown how to make the cargo booms which are located fore and aft, how to rig the antennas between the stacks, how to fit the many tiny stairways that connect the various decks, how to mount the completed ship on a base and finally, how to make a protective plastic case for it. A last-minute change by the modelmakers who have been building the *SS United States* for this series of articles supersedes a detail given previously in Part IV. This pertains to the brass bulwark which is cemented to the fore end of the aft-stack deckhouse. The shape of this bulwark should be changed

By Wayne C. Leckey

## Conclusion

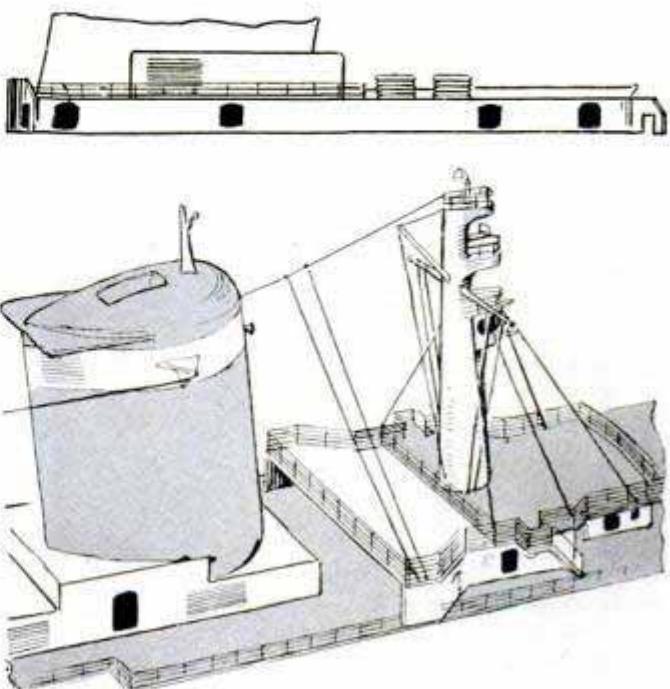


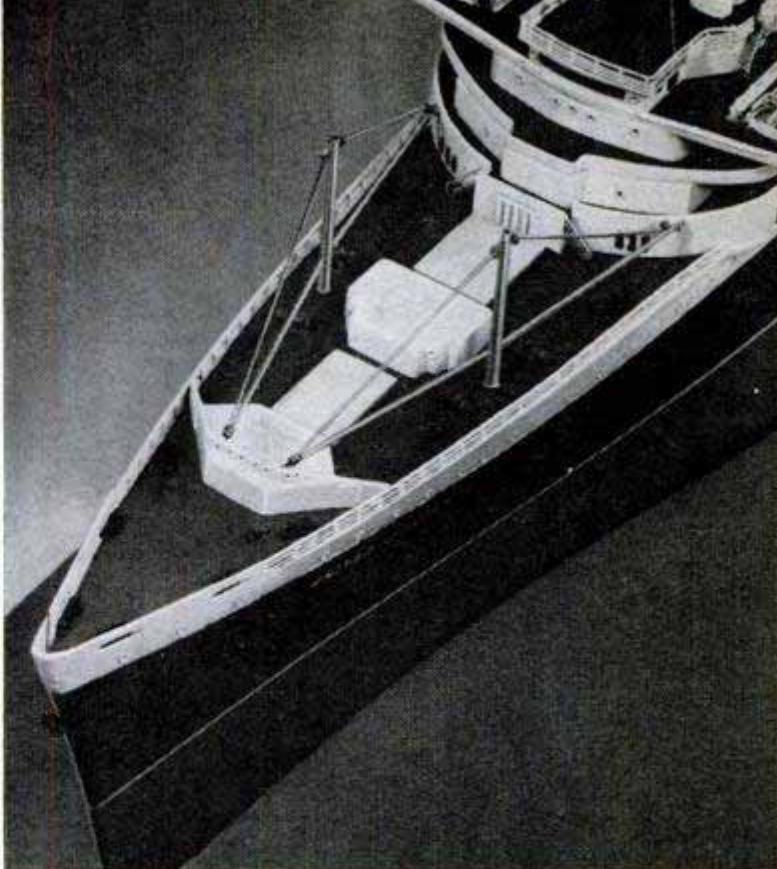
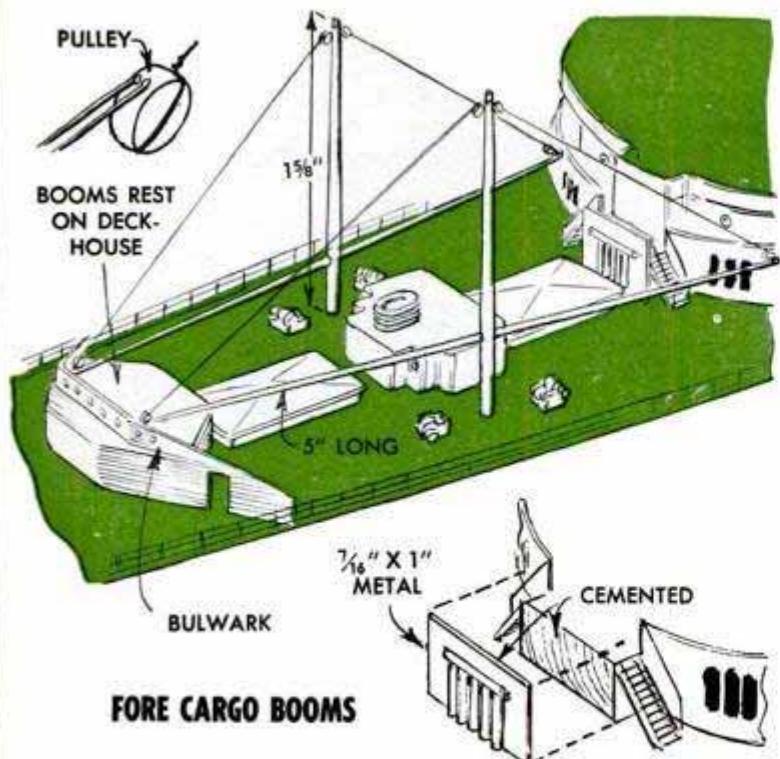
Here is the completed model of the beautiful *SS United States*, speed queen of the seas and the pride of America. Photos compare model with lines of actual ship



to coincide with the bulwark shown in detail C which is given in the drawing at the left. This differs primarily in that it is longer, and thereby extends from railing to railing which skirts the sun deck, and has doorways cut in it at each end.

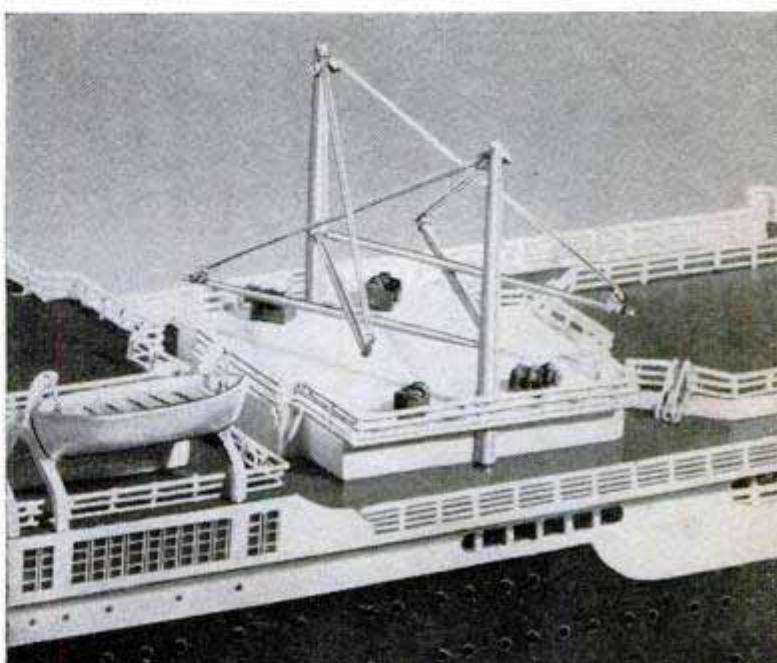
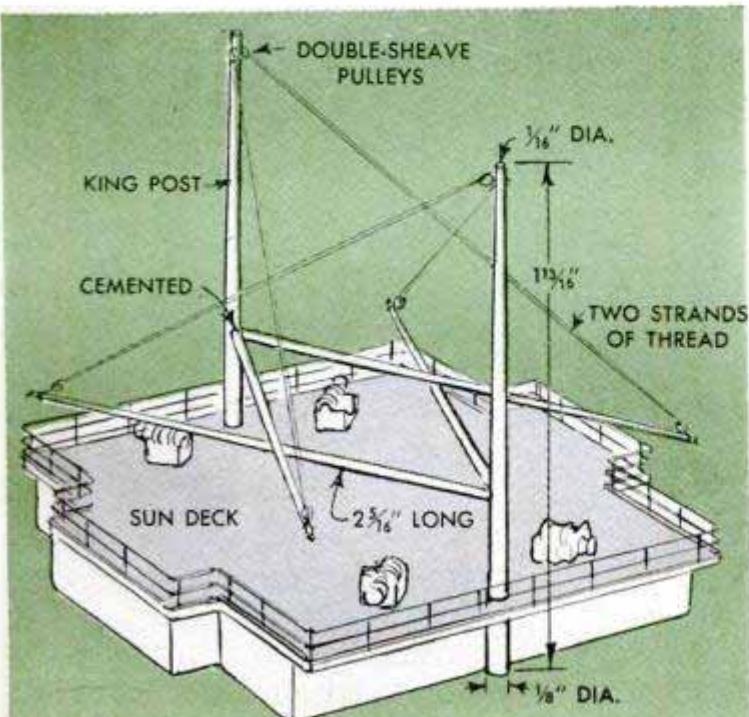
In resuming work, it is assumed that you have all the railings installed as described last month. Next, the aft end of the sports deck below the fore stack is fitted with a brass bulwark that is shaped as shown in detail B. In addition to notches formed at the ends to represent doorways, two other notches for stairways are made in the upper edge of the metal strip. The latter notches are filed down even with the sports deck, and the ends of the strip are bent outward at a 60-deg. angle. This strip is painted white after the stairways are attached and preferably before it is cemented to the end of the sports deck. A similar strip, part A, is cemented to the aft end of the sports deck which supports the aft-stack deckhouse. This is practically a duplicate of part C, except that, in addition to the doorways at each end, five others are represented by cutting small pieces of black paper and cementing them in place,

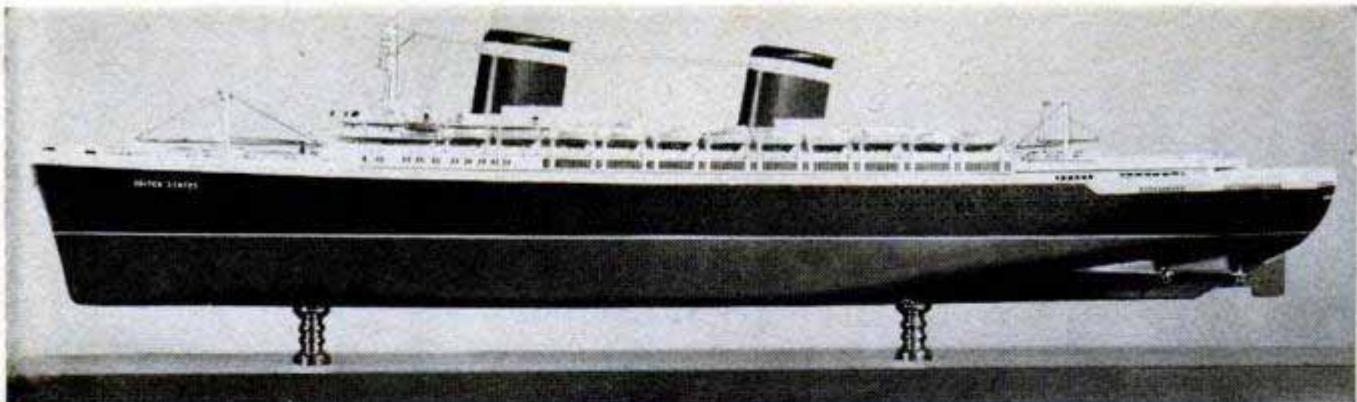




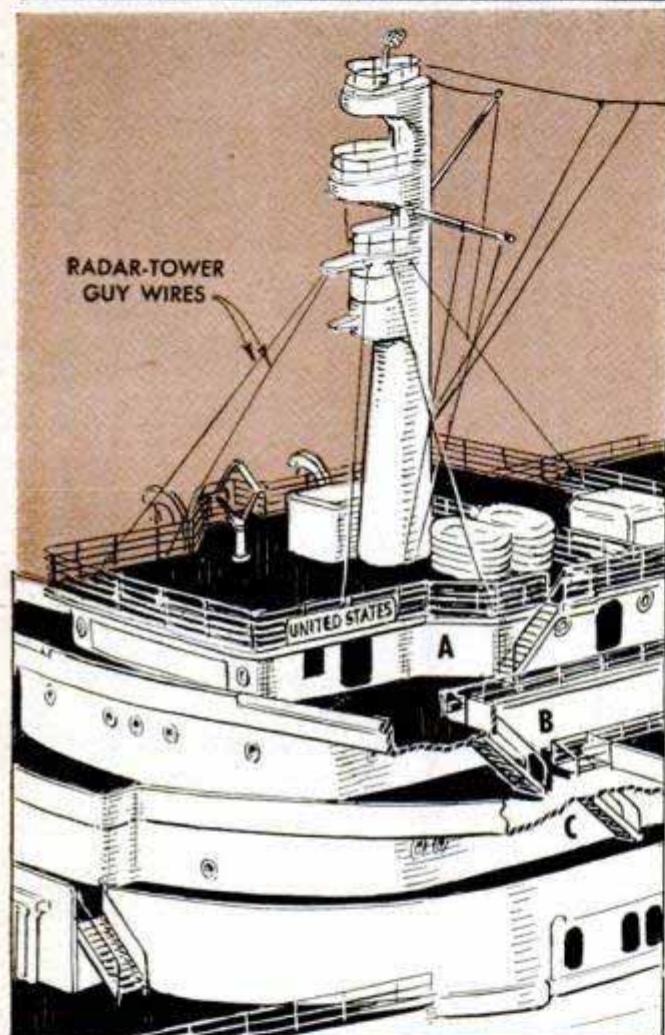
as indicated, after the strip is painted white. The aft end of both the sun and the sports decks are likewise fitted with black windows and doors in the same manner. Cutting these from paper and cementing them in place makes a neater job than trying to paint them. The stairways are stock parts but require soldering of fine-wire railings to each side. Twenty stairways are needed in all and their locations can be found by referring to the plan view given in Part I. The photos and details on this page show how the dummy aft and fore cargo booms are rigged. The king posts can be made either of wood or metal and tapered with a file or sandpaper. Note that these pass through the overhang of the sun deck

and enter the promenade deck  $\frac{1}{4}$  in. The booms fit the king posts about  $\frac{1}{2}$  in. up from the deck. In the case of the fore booms, the two booms of each king post are represented by a 5-in. length of wire tapered at the ends and inserted through a small hole drilled through the post. Note that the forward ends of the booms rest on the deckhouse, while the aft ends are held to the promenade-deck bulwark with small eyes formed of wire and inserted in holes in the bulwark. Two strands of thread represent cables for each boom and these enter holes in the pulleys only at the top where they are secured with a drop of household cement. The booms of the aft cargo hoists are rigged similarly, the booms being cemented to the king posts and rigged with thread as before. The booms and





# UNITED STATES UNITED STATES UNITED STATES



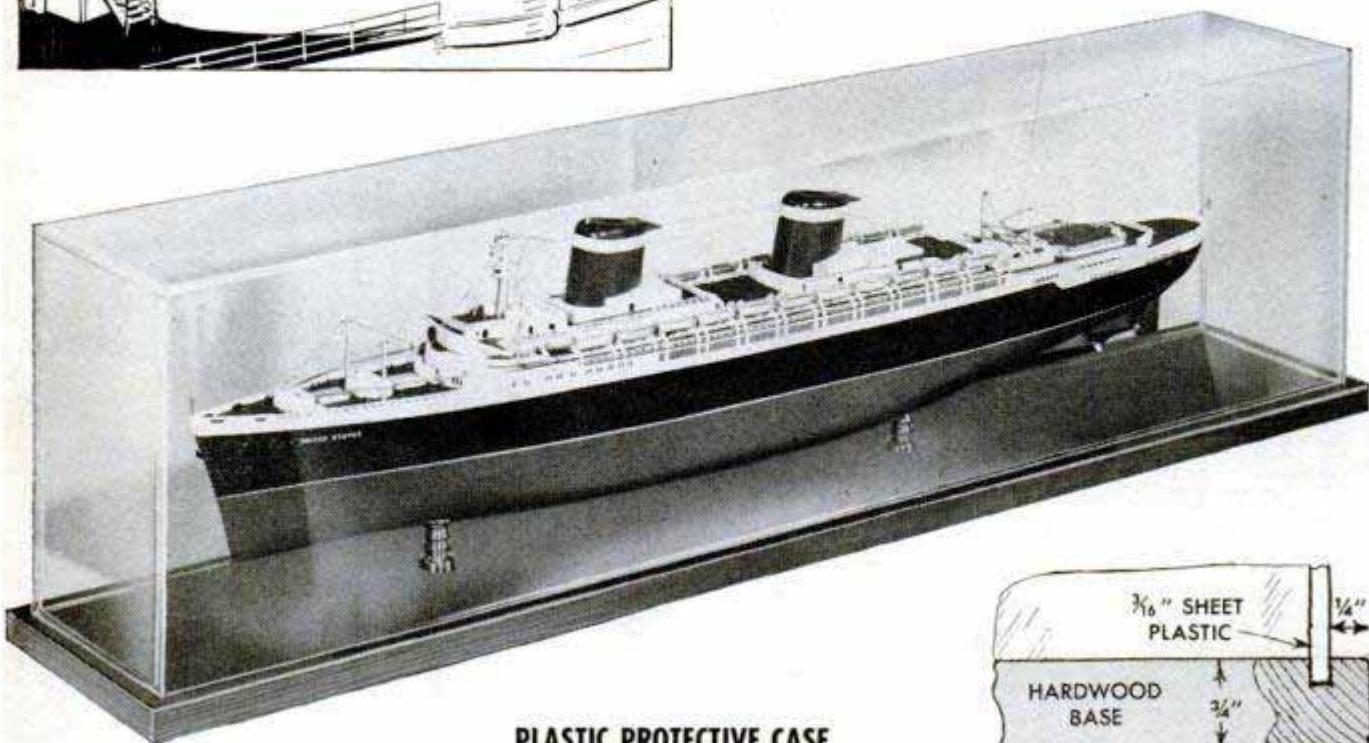
**Neat job of applying ship's name is done by cutting out the above lettering and gluing directly to hull**

king posts are painted aluminum. The tiny pulleys are attached with fine wire to the top of the king posts and to the outer ends of the booms. A winch is provided for each boom. Eight are required and these are furnished in a kit which includes all the other fittings needed. The plan view in Part I shows where the winches are placed, as well as all other deck fittings, such as the capstans, bitts, roller chocks and loop antenna. Thread rubbed with beeswax or fine wire is used to represent the two antenna wires which run from bracket to bracket on each side of the stack.

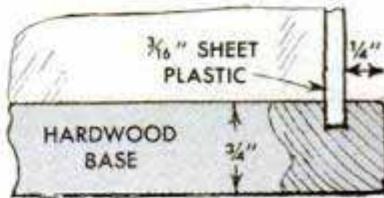
The detail at the bottom of page 180 shows the rigging of the radar tower, and how the radio wires are run to the wheel-

UNITED STATES

UNITED STATES



PLASTIC PROTECTIVE CASE



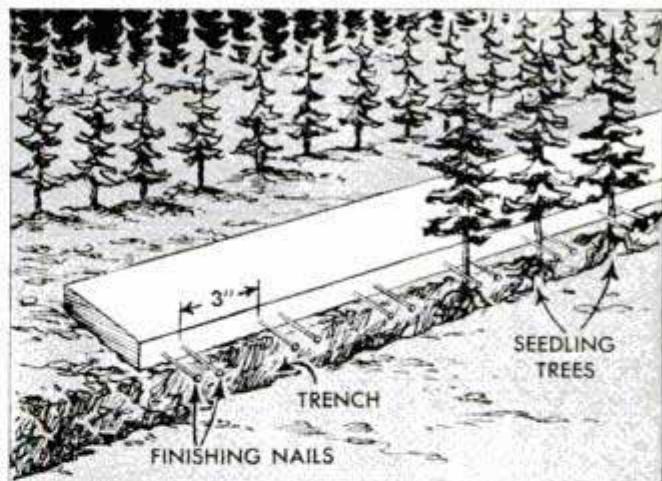
house from a single wire or thread that stretches from the top of the radar tower to the center of the fore stack. Name plates for the ship, which are given on page 182, are actual size so you can cut them out and glue them to the black hull. Place one on each side at the bow and the other around the end of the stern. In addition to these name plates, two smaller ones are given for mounting on the railing above the door of the wheelhouse on the navigating bridge. These are cemented first to thin cardboard, then trimmed to size with a razor blade and cemented to the railing.

There are several ways to make a protective case for your model, using either glass or plastic. Perhaps the neatest case is made of sheet plastic, cementing the panels together flush at the edges and letting the completed case rest in a groove routed around the edges of a finished mahogany baseboard. If you prefer a case made of glass, the top panel can be set in a wooden frame, like a picture frame, and glued and screwed to grooved posts at the corners, after which the assembled case is attached to the baseboard with flat-headed wood screws driven up through the bottom and into the posts. The baseboard should measure about  $7\frac{1}{2}$  in. x 39 in. The two brass posts which support the model on the baseboard are turned to the shape given and bored lengthwise to take long screws, the heads of which are set flush in counterbored holes in the underside of the baseboard. A wire flagstaff, 1 in. long, is fitted at the stern and the bow of the model, the stern staff flying a tiny American flag measuring  $\frac{1}{4} \times \frac{3}{8}$  in. Full-size patterns for marking the deck, sheer and water-line outlines of the hull, plus actual-size carving templates are given in a set of two blueprints. Construction details are given in an additional set of two sheets. Construction kits are available which contain the lifeboats, davits, quadruple screws, anchors, stairways, portholes, running lights, whistles and all the other tiny deck fittings that are needed.

★ ★ ★

## Correct Use of Paint Roller Gives Smoother Finish

Paint rollers afford the home painter one of the fastest and easiest ways of turning out a good paint job on walls. Before using the roller, "cut in" around the ceiling corners and woodwork with a 2-in. brush. Then apply the paint by running the roller lightly and continuously back and forth. Do not press too hard. Cross-roll if necessary to fill in the missed spots, but always finish by rolling all strokes in one direction. Be sure to clean the roller immediately after use.



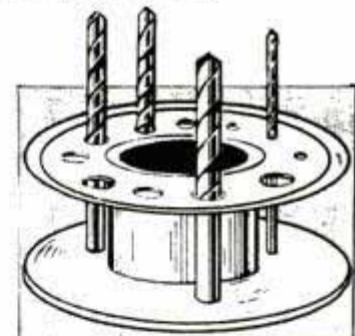
## Guide for Spacing Seedlings Speeds Transplanting

Tree and plant seedlings can be spaced uniformly during transplanting with a guide made from a flat board and finishing nails. To transplant a number of seedlings quickly, dig a trench to the required depth and then place the guide alongside it. The seedlings are placed between the nails with their roots in the trench, and then the earth is replaced and compacted around the roots of each plant by hand.

## Drill Stand From Tape Spool

A simple stand for twist drills can be improvised from an adhesive-tape or typewriter-ribbon spool. One side of the spool is drilled with the bits to be stored in it as indicated. To make the stand heavier and less likely to tip, the center of the spool can be filled with plaster.

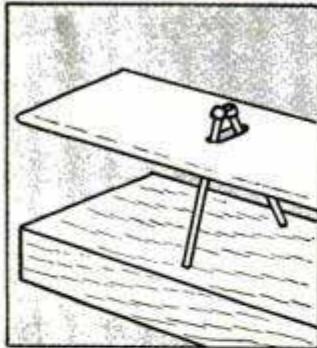
John A. Comstock, Wellsboro, Pa.



## Inventory List Taped to Freezer

Desiring a home-freezer inventory chart that could be posted close at hand to assure keeping entries up to date, one homeowner listed the items on sheets of paper and taped them with freezer packaging tape to the cover of the freezer. Opposite each entry, rows of check marks were made representing the number of units stored. Whenever a unit is removed, a line is marked through the check to make an "x." Then, to make sure a pencil always would be handy, he obtained a small magnet of the type having a wooden handle. The handle was drilled to take a pencil stub, after which the magnet was stuck to the cover or side of the freezer.

## Jig for Painting Venetian Blinds

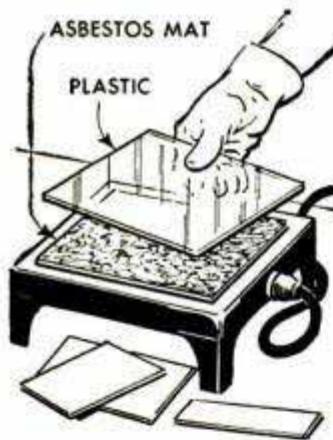


A jig to simplify the painting of Venetian blinds can be made of a 1 x 3-in. board, 6 in. longer than the slats to be painted, and finishing nails, which are driven at each end of the board to form inverted vees. The

vees should be placed so that the slots in the blind slats just fit over them. The slat is placed in the jig and one side is painted. Then the slat is carefully turned over by holding both ends with the finger tips and the other side is painted. After painting, the slat can be hung over a nail driven into an overhead beam in the basement and allowed to dry.

E. V. Moore, Rockville Center, N. Y.

## When Bending Sheet Plastic Use Asbestos Mat Over Heat

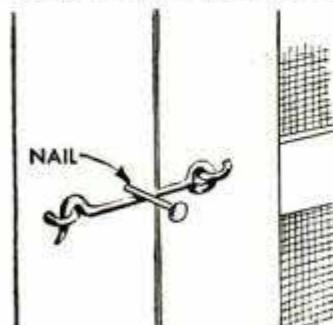


When heating sheets of plastic on a stove or hot plate for forming, place an asbestos mat between the heat and the plastic. Plastic material should never be placed in direct contact with high heat. Cotton gloves are recommended for handling hot plastic sheets, but

the plastic should be gripped only lightly or an imprint of the glove material will remain in the plastic after it is cool.

Harry X. Lawson, Pala, Calif.

## Nail Locks Window-Screen Hook



To prevent children from unhooking window screens and storm windows which are held in place by common screw hooks and eyes, simply drive a nail over the hook as indicated. Allow

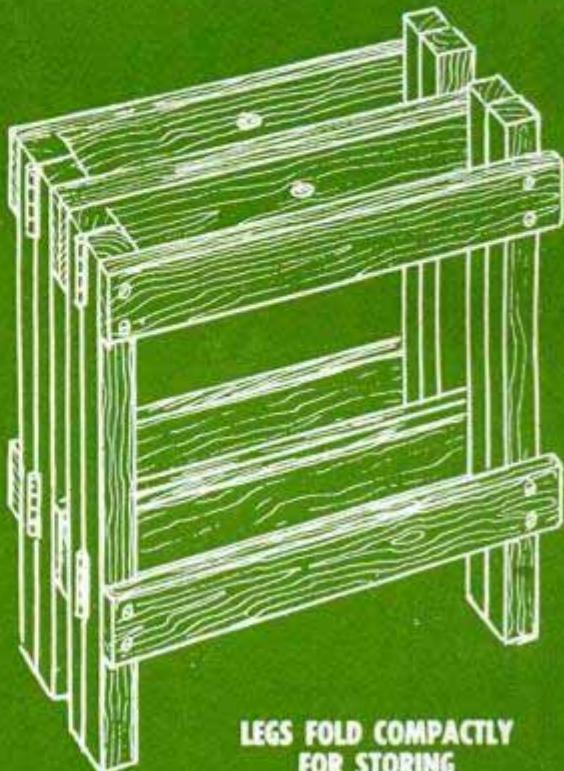
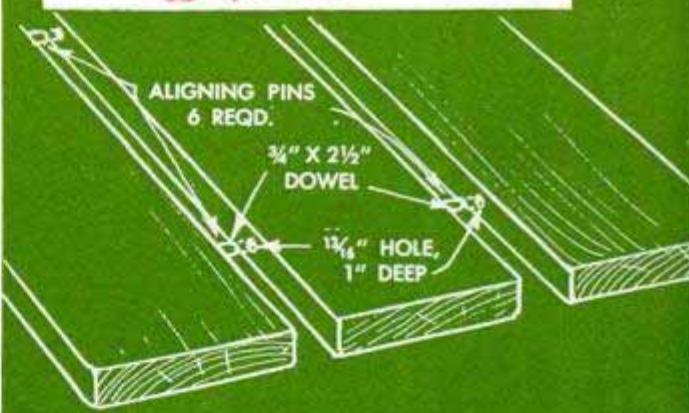
the nail to project far enough so that it can be removed easily when necessary. This simple safety device may prevent a serious fall.—R. F. Donovan, Guttenberg, N. J.

# PLAN of the MONTH

Have you wanted a picnic table for back-yard barbecue parties but have wondered where you would put it when winter comes? This knockdown one solves the problem completely as the leg assemblies and plank top can be tucked away in a minimum of space in the basement or garage. Redwood makes the most durable table, but pine or cedar will do, and all members are dimensioned lumberyard stock. A screen-door spring makes each leg assembly stay put in supporting the plank top. A coat or two of resin sealer will prevent weathering. The plank top can be of any length; planks 8 ft. long will seat eight persons comfortably, while 11-ft. planks will take care of 12 persons nicely. Aligning pins in the edges of the plank leaves keep them from shifting

By John Bergen

WTM '55



# ...Knockdown Barbecue Table



## MATERIAL LIST

### Dimensioned lumber

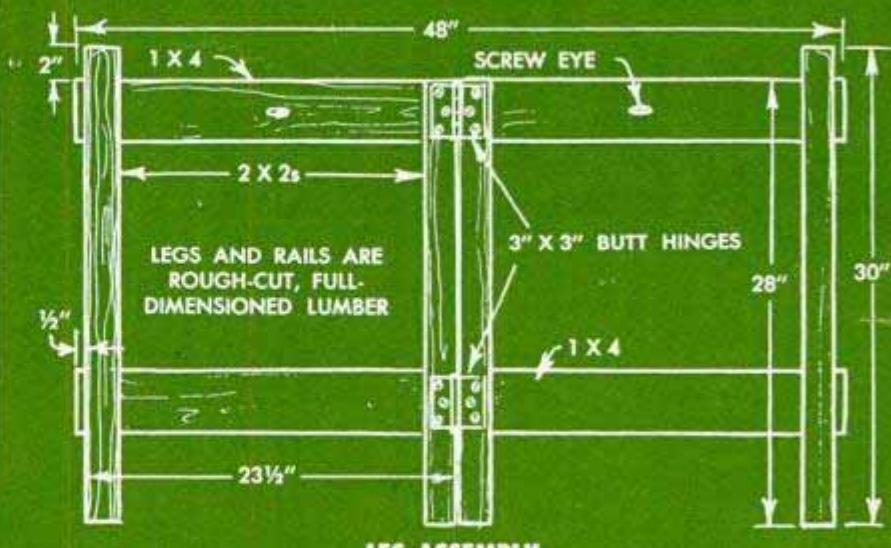
3 pcs.— $1\frac{3}{4}'' \times 11\frac{1}{2}'' \times 8'$ —Top

### Rough-cut lumber

4 pcs.— $2'' \times 2'' \times 30'$ —Legs  
4 pcs.— $2'' \times 2'' \times 28'$ —Legs  
8 pcs.— $1'' \times 4'' \times 24'$ —Leg rails

### Miscellaneous

3 doz. #12-2" F. H. screws  
2 doz. #12-1½" F. H. screws  
2 pr. 3" x 3" butt hinges  
2 screen-door springs  
1 length of ¾" dowel  
1 pt. waterproof glue  
1 qt. resin sealer



2 X 12s 8' TO 12' LONG

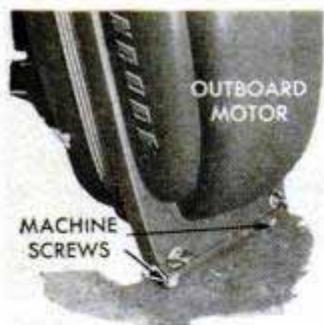


## Funnel From Whipped-Cream Can Used to Fill Brake Cylinder



When it is necessary to add fluid to the master brake cylinder of your car, the job can be done without spilling if you use an empty whipped-cream can as a funnel. Remove the bottom of the can with a rotary opener and fill with fluid. When inserted in the cylinder opening, a slight pressure against the neck of the can will cause the fluid to run.—J. H. Troy, Turtle Creek, Pa.

## Rests Protect Outboard Housing



The rounded corners of the housing on some outboard motors permit them to roll easily when carried in the trunk of the car. To prevent this and also to protect the housing from being scratched when the motor is laid on the dock, drill and tap two  $\frac{3}{8}$ -in. holes in the rear housing frame and install round-headed brass machine screws and brass spacers  $\frac{1}{2}$  in. thick. These motor rests also will protect the motor side covers.

Clinton Hull, Costa Mesa, Calif.

## Concrete Floor Made Watertight By Layer of Tar Paper

Tarred-felt paper laid over sand or gravel fill before pouring a concrete basement floor will provide a moistureproof barrier between the concrete and the underfill. Rake the surface of the fill smooth and allow it to settle for several days. To avoid puncturing the paper when pouring, cover

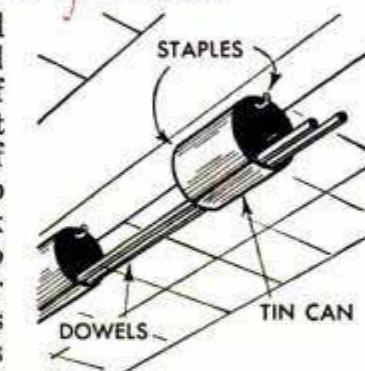
only as much of the underfill as you intend to cover with concrete each time. If the underfill is gravel or stone, pour the concrete carefully so that the tar paper will remain un torn.

Peter G. Gordon, Lansing, Ont., Can.

## Ceiling Rack Stores Dowels

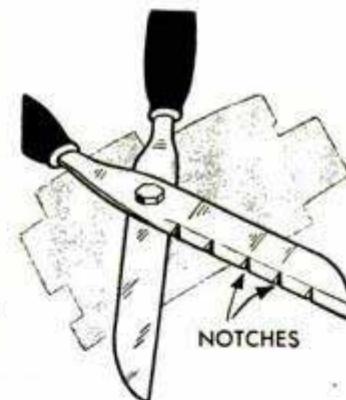
To store odd lengths of dowel stock and strips of molding close at hand but out of the way, keep them in a rack formed with two tin cans stapled or nailed to the joists overhead as shown. All that's necessary to prepare the cans is to remove the ends with a rotary can opener. Holes may be punched near the ends of each can to simplify driving the nails or staples.

J. F. Landusky, Appleton, Wis.



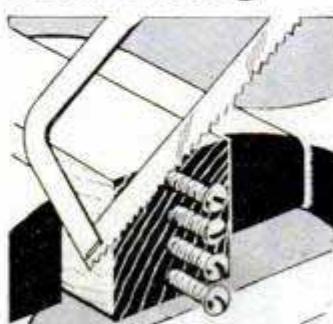
## Hedge Shear With Notched Blade Cuts Slippery Branches

When trimming hedges, bushes and small branches of trees with a hedge shear, one homeowner overcame the annoying tendency of slender, smooth branches to slip from between the blades by notching the cutting edge of one blade as shown. The notches are filed or ground so the sides of each are beveled to form miniature cutting edges.



## Machine Screws Shortened Easily When Held in Block for Cutting

Machine screws can be shortened quickly with a hacksaw if you first drill holes in a block of wood and thread the screws in to the desired depth. For cutting, place the block in a vise or on the edge of the workbench. This method prevents the threads from being damaged by the vise and also allows a number of screws to be cut at one time.



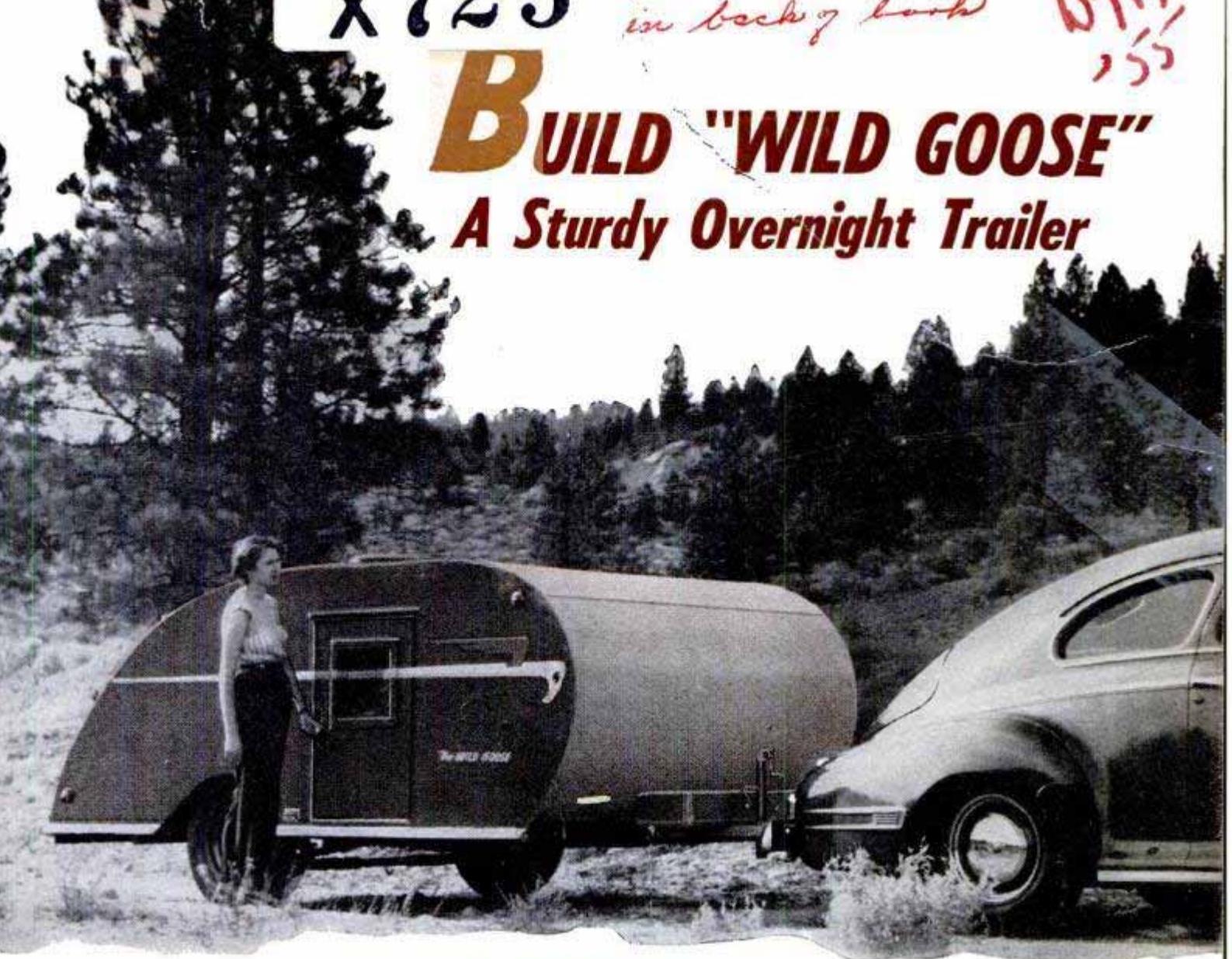
X 625

in back of book

511  
155

# BUILD "WILD GOOSE"

## A Sturdy Overnight Trailer



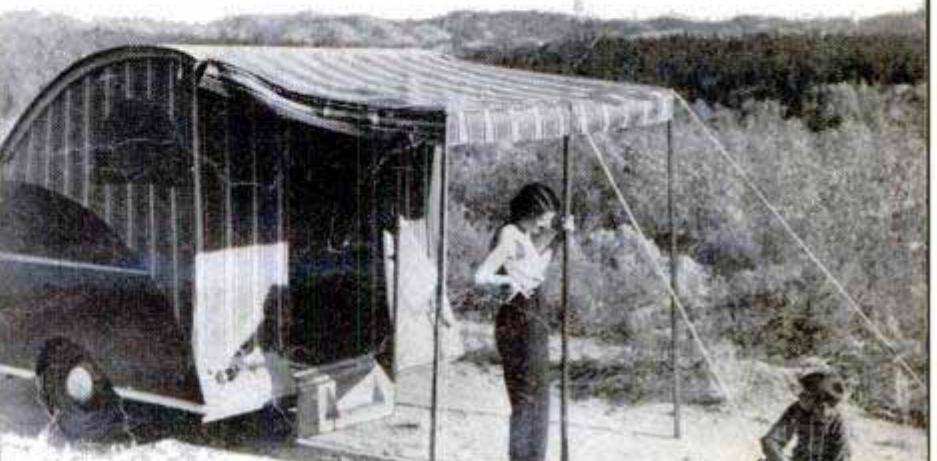
By Vic Goertzen

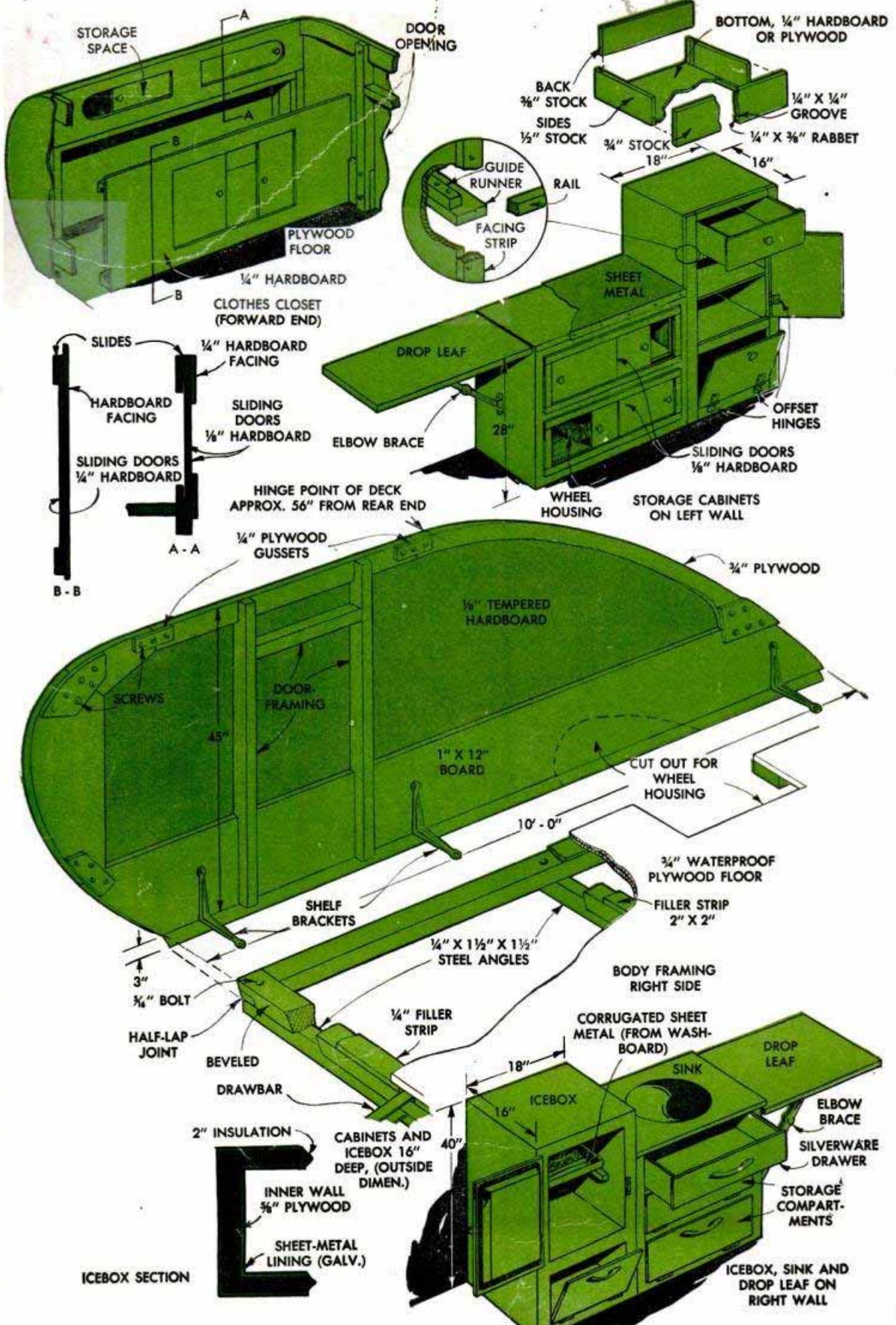
WTM, '55

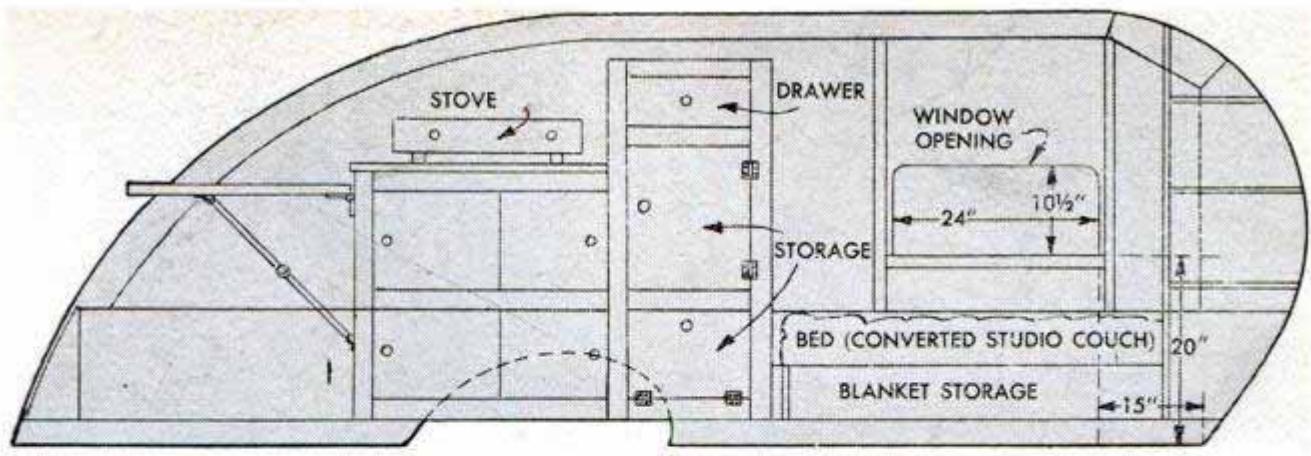
OVERNIGHT CAMPERS, hunters, fishermen and vacationers with limited time can appreciate the convenience, comfort and ready roadability of "Wild Goose." Hung low to the ground, yet with ample road clearance for the back trails, it tows anywhere your car will go. Keep it packed with the necessary bedding, also canned and dried foods and you can get away for a week-end trip in only a few minutes' time. When you arrive at the destination, Wild Goose sets up into a neat outdoor "kitchenette" in less time than it takes to put up a tent.

Looking over the details on the following pages you will note that the construction of this streamlined job differs somewhat from ordinary trailer construction. Where adaptations must be made only a few general dimensions have been given. Because the unit has been designed for road speeds up to 60 m.p.h. care must

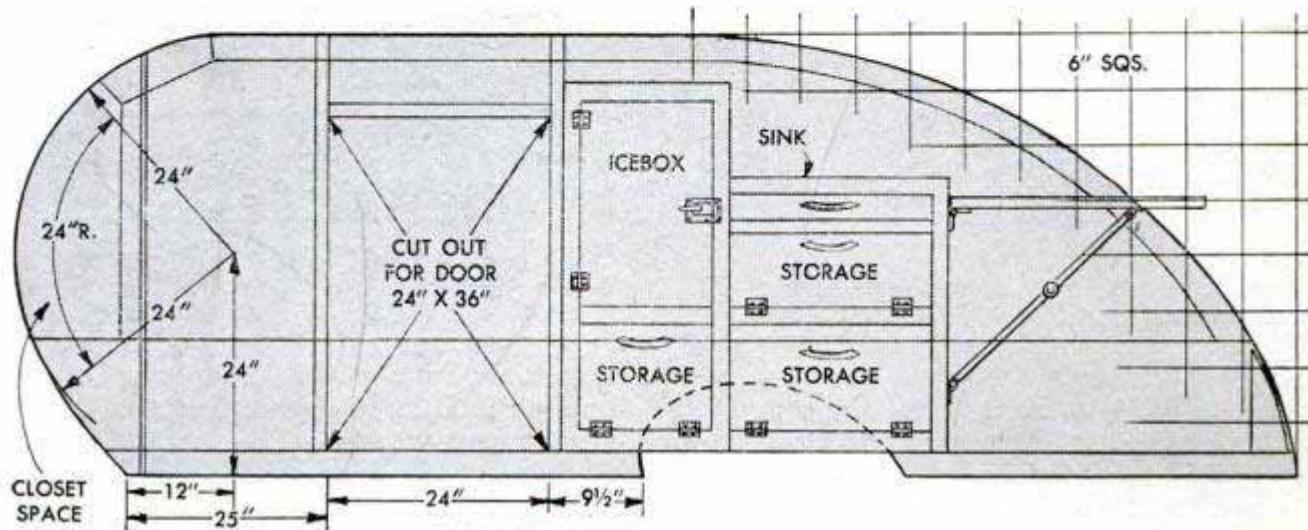
be taken when assembling the welded chassis frame. When notching the channel-steel side frames to form the first bend, cut the notches accurately so the meeting edges fit snugly before welding. The gusset plates should be at least 12 in. long, and at the forward end of the drawbar where the reverse bends open the cuts made in the channel webs it's a good idea to weld in



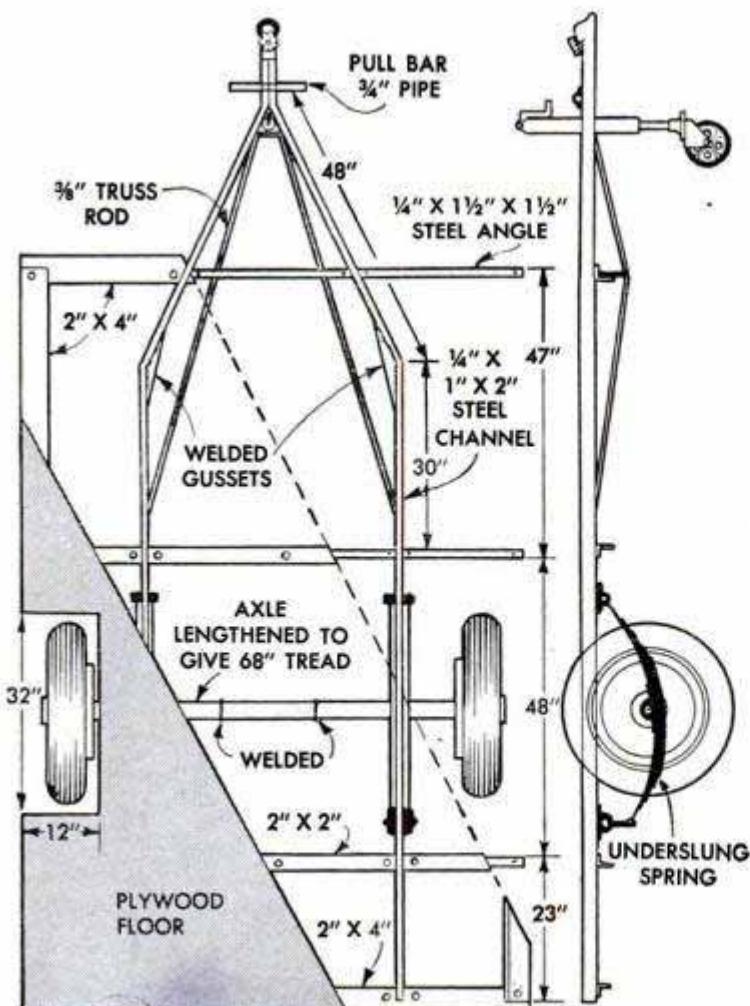




LEFT SIDE (INTERIOR)



RIGHT SIDE (INTERIOR)

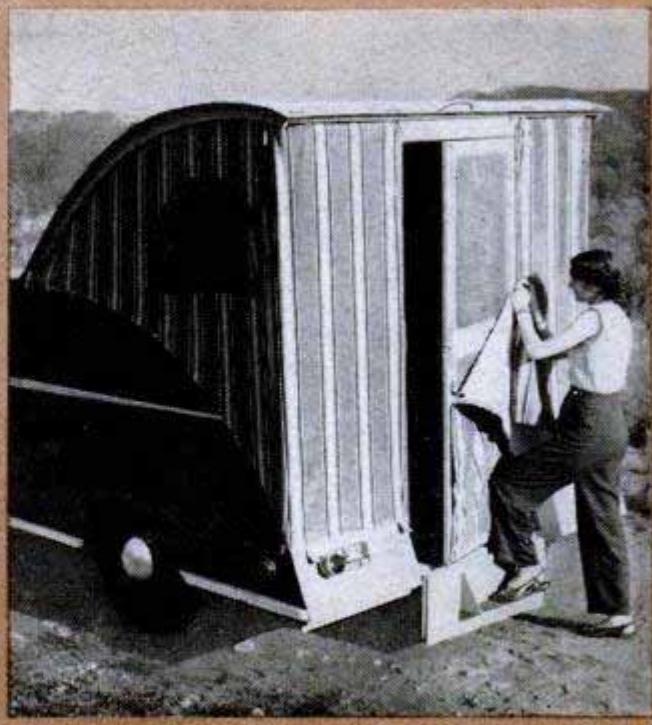


triangular filler pieces for maximum strength. Note also the position of the truss rods which pass under the forward cross member. The ends of the rods are welded to the frame members and are bent over king posts to form individual trusses. This construction carries the load at the forward end without any tendency to springing or vibrating, which would cause the trailer to weave at high speeds.

Note in the chassis details at the left how a 2 x 4-in. subframe is bolted to the steel chassis frame. If you use an auto front axle it must be cut and a filler piece welded in to obtain a 68-in. wheel tread. A standard trailer axle is recommended. Mount the axle to center approximately 47 in. from the rear frame member, attach the wheels and fit a parking jack with small caster wheel on the drawbar so the chassis frame can be leveled. Cover the wooden members of the chassis framing with a 3/4-in. waterproof-plywood floor and plane the edges smooth and square. Added strength and rigidity will be gained if the plywood floor is glued to the wooden frame



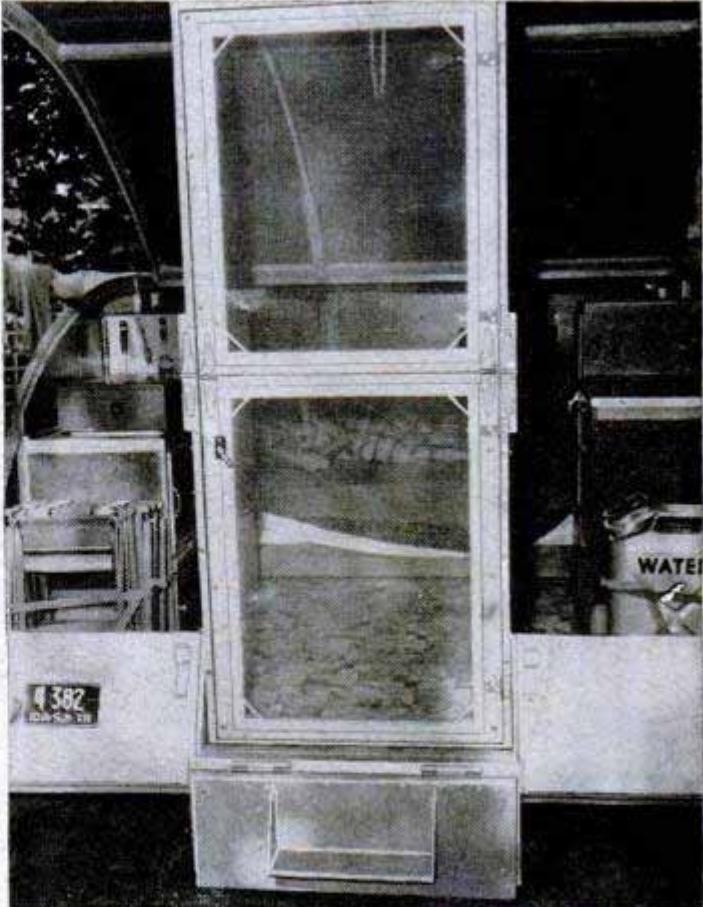
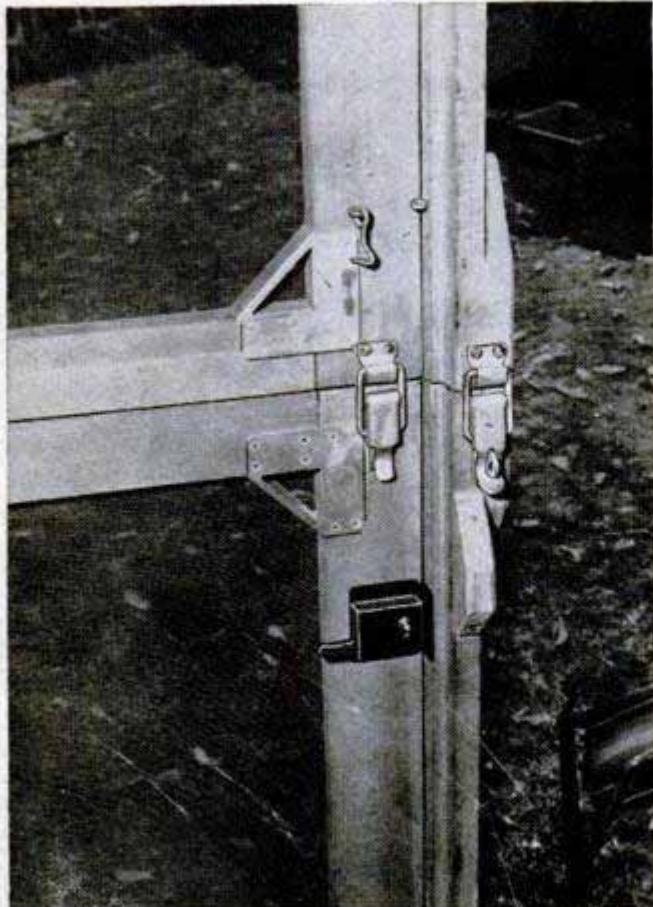
Fabric walls enclosing kitchen area are attached with grommets and turn buttons. Use heavy awning cloth



All set up at vacation, hunting or fishing camp, with cooking and sleeping accommodations for two persons

members with a waterproof glue and fastened with  $1\frac{1}{2}$ -in. F.H. screws spaced about 4 in. apart. Next, assemble the sides as in the detail drawings on pages 188 and 189. These are assembled separately and then attached to the floor with heavy shelf brackets. Cross ribs, or "rafters," are put in after the sides are attached and braced temporarily in the vertical position. Now note in the center detail on the preceding

page, showing the right side, that the cross-hatched portion of the side measures 66 in. from the rear end. This establishes the hinge point of the curved deck. The latter raises and is supported on the folding screen-door frame as in the photos above and below. This gives standing room at the sink and stove. The area is enclosed with fabric walls made from heavy awning material as shown.



Probably the best method of making the sides is to lay out the profiles full-size on a single sheet of heavy wrapping paper made by taping together several widths to get the required size. Then cut the side panels from  $\frac{1}{8}$ -in. hardboard. Assemble the frame members on the panel as detailed, cut them to fit, then glue and screw each piece to the panel. Note that the joints are strengthened with plywood gussets attached with glue and screws. Locate the openings for the door and window and cut away the panel. Add the top and bottom frame members for the window and the top member over the door opening. Then attach with shelf brackets to the plywood floor and brace temporarily in the upright position. Be sure that the sides are braced perpendicular to the bottom.

Locate and mark the hinge point of the curved deck on both sides. Some builders may wish to place the hinge point farther forward to gain more headroom at the refrigerator and sink. If you purchase sink, refrigerator and cabinets ready-made this may be advisable. In any case the center rib is located with its back face at the hinge point. Openings for the wheel housings can be cut into the side panels and the metal housings fitted in place. The housings are raised into position and the lips screwed to the floor. It's a good idea to coat edges of the plywood with a waterproof mastic before placing the housings. At this point cut four  $\frac{3}{4}$ -in. plywood ribs for the deck. Cut the ribs 2 in. wide and about 2 in. longer than the measurement and to the same contour as the curved rear half of the sides. Some handwork will be necessary to assure a true fit at the front and rear where the sides join the floor. Keep in mind that waterproof glue is used in all joints in addition to screws.

The first forward rib is located approximately 15 in. from the floor. Now, before you go further, measure and cut the two covering pieces from  $\frac{1}{8}$ -in. tempered hardboard, using 4 x 8-ft. panels. After cutting to the required width, allowing  $1\frac{1}{8}$ -in. overhang on both sides and a 2-in. overlap at the joint, place the parts in position and locate the rib under the overlap. Glue and screw the rib in position. Two other ribs are installed equidistant between the three already in place. Now install the covering pieces, beginning with the front piece. Pre-fit this piece at the front edge, notching over the drawbar members and trimming the edge flush. Then spread glue, clamp in place and drive screws at the lower edge first. An exceptionally neat job of attaching the covering can be had by using oval-headed screws turned in over finishing washers. Otherwise use roundheaded screws spaced about 2 in. apart.

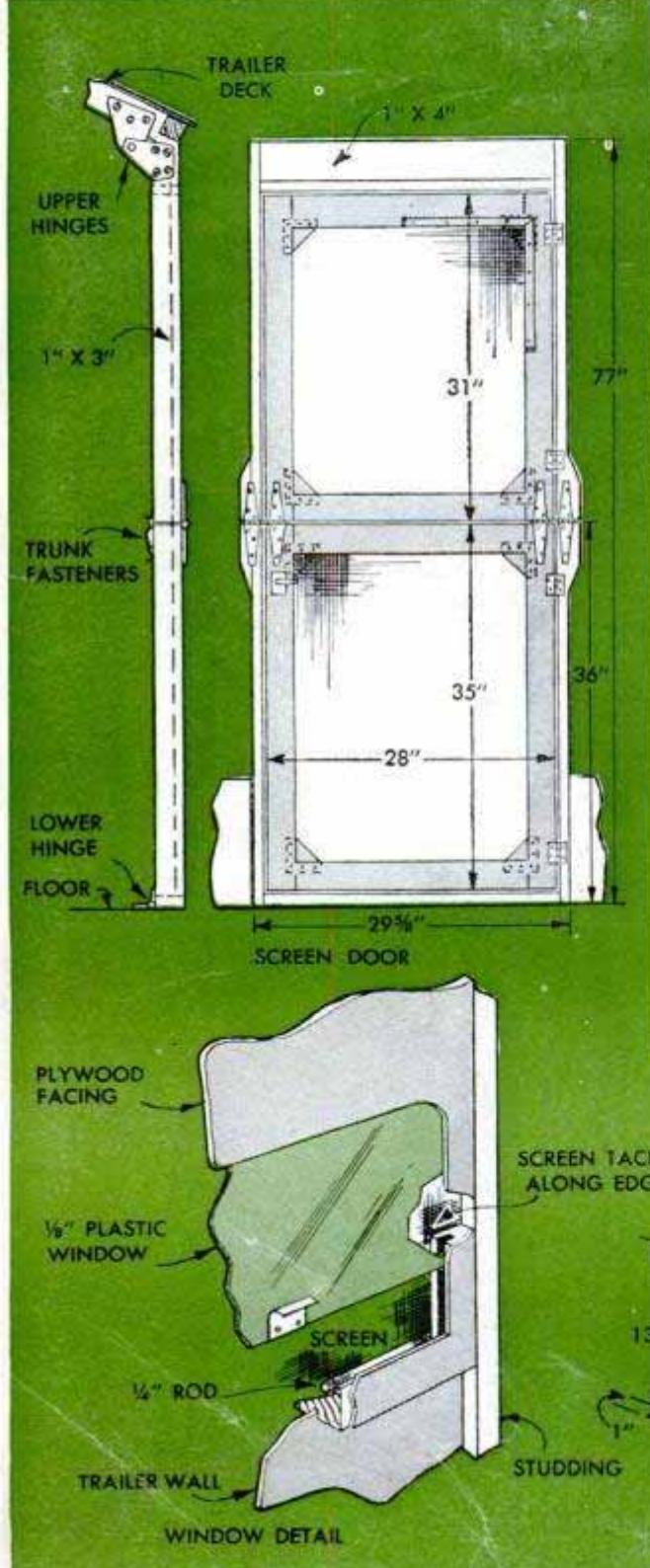


Space under studio couch provides for storage of a spare tire and also clothing and sporting equipment



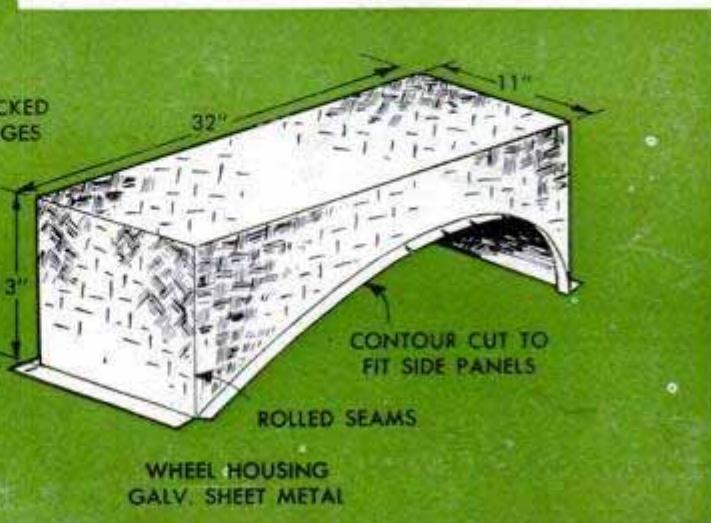
Above, there's ample space on the metal-topped cabinet for a camp stove. Below, refrigerator and sink cabinet with drop leaf occupies right wall of trailer





Now note in the upper and lower right-hand photos on page 190 the folding step and the fixed panels on each side. The side panels are approximately  $11\frac{1}{2}$  in. high and are screwed and glued to 2 x 4-in. posts bandsawed to the contour of the trailer sides and screwed and glued to the bottom with the outer edges  $\frac{7}{8}$  in. from the trailing edge of the floor. Space between the inner posts should be  $29\frac{1}{8}$  in., which is the width of the doorframe. Fit  $\frac{3}{4}$  x 12-in. plywood panels over the posts and attach with screws and glue. Cover the wooden panels with  $\frac{1}{8}$ -in.-hardboard panels cut to extend down over the rear edge of the floor and floor supports. The step panel is cut from  $\frac{3}{4}$ -in. plywood to fit between the posts and is hinged to the rear chassis member. The outer face of the hinged panel is covered with  $\frac{1}{8}$ -in. hardboard extending  $\frac{1}{2}$  in. at the top and ends. The original step was made by cutting, bending and welding  $\frac{1}{8}$ -in. steel to form the unit pictured. It is attached to the hinged panel with screws.

At this stage the curved deck can be made and fitted in place. The ribs, which have already been cut, can now be fitted individually. Cross ribs are butt-joined to the outer curved ribs but are half-lapped over the center ribs. Join all ribs to a 2 x 2-in. cross member at the ends. Before covering with  $\frac{1}{8}$ -in. hardboard, check the fit of the deck frame in the opening. It should fit snugly without binding at any point. Now attach the covering pieces, beginning at the forward end of the frame, in the same manner as those on the front of the trailer. Slide the edge of the second piece under the edge of the first one to form an overlap directly over the center cross rib. When driving the screws make sure that the hardboard does not buckle and that the overhang on each side is the same. Hinge the completed deck in place, using four butt hinges equally spaced across the width. Cover the joint with two thicknesses of waterproof canvas cut into 4-in. strips and tacked or screwed over the



joint. Spread calking compound under the first strip and fold the edges of both strips as they are tacked. Do not use glue as it may be necessary to renew the canvas covering after several seasons of service.

Details on page 188 show the clothes closet built into the forward end of the trailer body, also the storage cabinets on the right and left walls. The closet is of simple construction, and there can be some variation in the position of the parts. Sections A-A and B-B show how the sliding doors are fitted. Dimension and position the parts according to the space occupied by the studio couch you use for a bed. Cabinets are made from plywood with fac-ing strips of solid stock. The design of the cabinets can be altered to suit the builder's requirements. Only a portion of the lower compartments can be used for storage; as the cabinets are built over the wheel housings. Ready-made unpainted cabinets can be adapted by removing the lower drawer, cutting away a portion of the back and fitting a hinged door over the drawer opening. Small iceboxes also are available.

Although a method of constructing a window with a plastic pane is detailed on the opposite page, it is recommended that a ready-made unit be purchased. The door in the right side of the trailer is framed with 1 x 2-in. stock and covered with  $\frac{1}{8}$ -in. hardboard. The door is weather-stripped with felt and is made watertight with an aluminum T-molding and metal drip trough.

The two-piece screen door, detailed on the opposite page, supports the deck when in the upright position and is hinged to fold inward as the deck is lowered. When in the raised, or open, position the door opens as a single unit. The upper door-frame hinges, shown in the side view, are made from  $\frac{1}{16}$ -in. flat-steel plates riveted together loosely for free movement and drilled for screws. Considerable hand fitting of the assembly will be required in order to assure free movement of the door and its folding frame. The door swings outward on four butt hinges as shown in the detail. The fabric walls enclosing the kitchen area when the deck is raised are cut to fit and are provided with equally spaced grommets for attachment to the deck and body as in the upper photos on page 190. If desired, an awning also can be provided as in one of the photos.

To finish, apply an undercoater and two coats of outdoor enamel. Joints in the body covering are concealed with aluminum moldings applied after finishing. Wire the trailer for a 110-volt lighting circuit for convenience in trailer courts. Use 6-volt screw-base bulbs for car-battery operation of lights. Provide clearance reflectors, tail-light and license-plate holder. ★★★

## Pipe Used as Sanding Block For Scrollwork

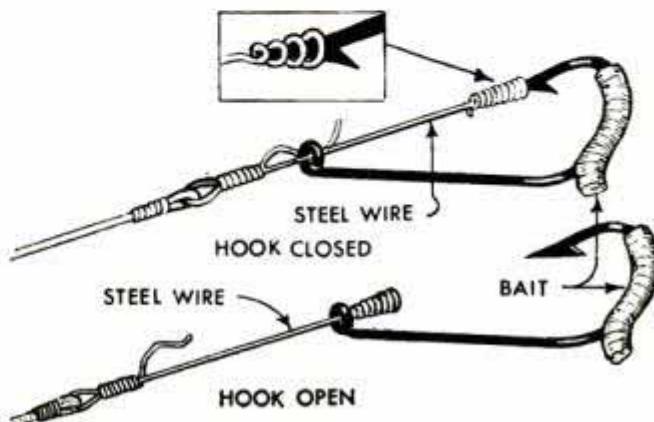


When sanding the edge of an inside curve or circle, the work goes much faster and easier if the sandpaper is wrapped around a piece of pipe about 6 in. long. The diameter of the pipe will depend on the radius of the curve to be sanded. Using the pipe also helps to keep the sandpaper square with the work.

Robert A. Hicks, Garden City, N. Y.

## Fishhook Has Sliding Wire Guard To Prevent Snagging on Weeds

A short length of thin, spring-steel wire is all you will need to convert a common fishhook into a weedless type. After bending the eye of the fishhook slightly inward, secure one end of the wire to the fishline, pass the other end through the eye and coil to fit over the point as shown. When finished, the wire should be just long enough to allow the leftover strand where connected to the line to be slipped through the eye and bent up as shown to hold the coil over the point. In use, a quick yank on the line as soon as any tugging is felt overcomes the wire catch and pulls the coil from the point inside the fish's mouth.



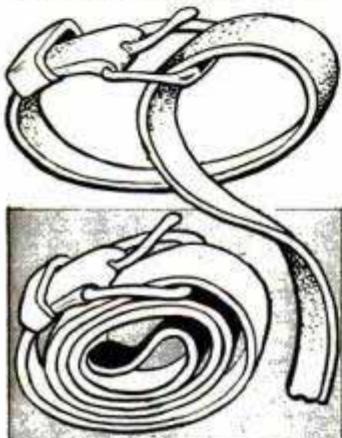
*W. Walnut St.  
Madison, Wis.*

## Pins on Paper Easy to Locate If Taped Around Bottle



Dressmakers, tailors, window trimmers and others who regularly require a supply of pins close at hand during their work, will find that a paper strip of the pins taped around a bottle in the manner shown is a valuable timesaver. Easily visible, the bottle is less likely to be misplaced or covered with other materials being used near by.

## Belt Coiled Inside Itself For Storing or Packing



It's easy to coil a belt into a compact roll that will not unroll when stored or packed in luggage. Simply insert the end of the belt through the buckle as shown, leaving a large loop. Next, roll the free end back toward the buckle and push

the resulting coil inside the loop. Then, holding the loop in one hand, twist the coil with the fingers of the other hand until it is tight and the loop itself tightens around it. To release the roll, twist the coil in the opposite direction to that in which it was rolled.—James K. Hufft, St. Louis, Mo.

## Paintbrush Gives Longer Service When Properly Broken In

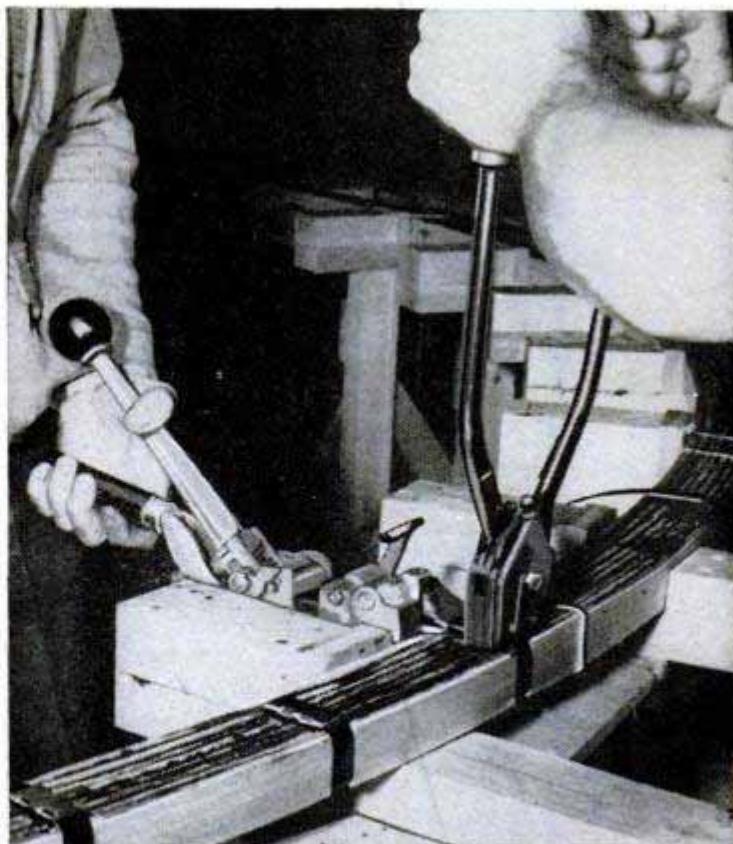
To give longer, more satisfactory service, a new paintbrush should be properly broken in. A preliminary 48 to 72-hr. soaking in raw linseed oil will saturate the porous bristles and prevent paint pigments or gums from becoming cemented within the bristles. After this oil bath, the bristles should be laid perfectly straight and wrapped in heavy paper. Just before use, unwrap the brush, wipe out the surplus oil and spin the brush over a large receptacle. This done, comb the bristles straight. Following this breaking in, you'll find that in addition to making the brush last a whole lot longer, you'll have a very flexible brush that is easy to use and easy to clean after the job is done.

# Laminating ARCHED RAFTERS

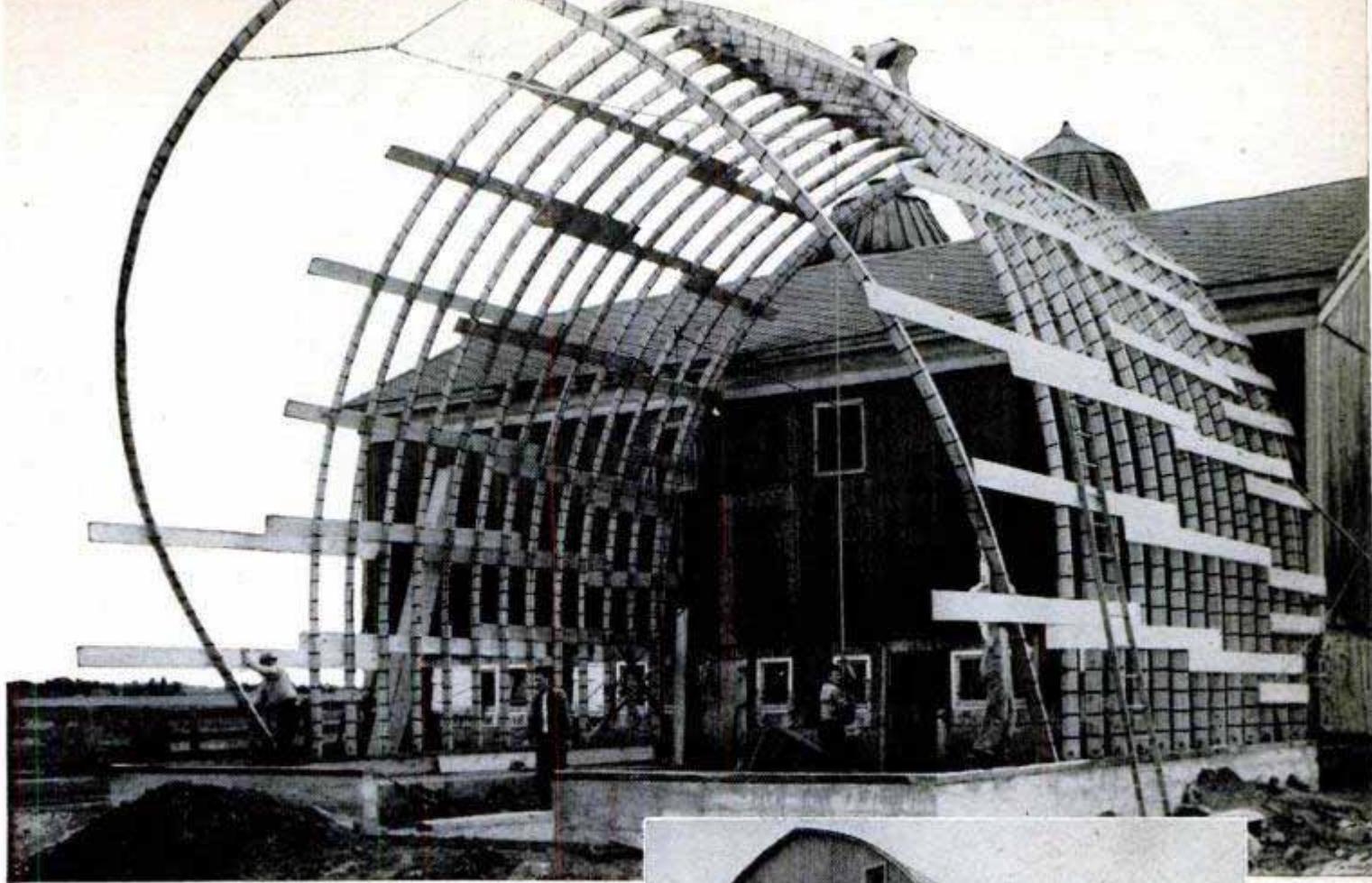
By F. A. Strenge

~~EXPERIMENTAL~~ work carried out by D. V. Doyle, of Forest Products Laboratory has resulted in the development of a ~~new~~ and simple method of laminating curved rafters right at the building site. The method promises to save valuable time in the construction of farm buildings, stores and other small frame structures on which the curved roof is desirable because of its resistance to wind pressures and damaging snow loads. The secret of the speed with which the rafters can be assembled is in the use of steel strapping as a means of clamping the bent strips after gluing. This is ordinary steel box strapping applied with a strapping machine as in the photo below. On rafters built up from 1 x 2-in. strips, the straps are placed about 12 in. apart.

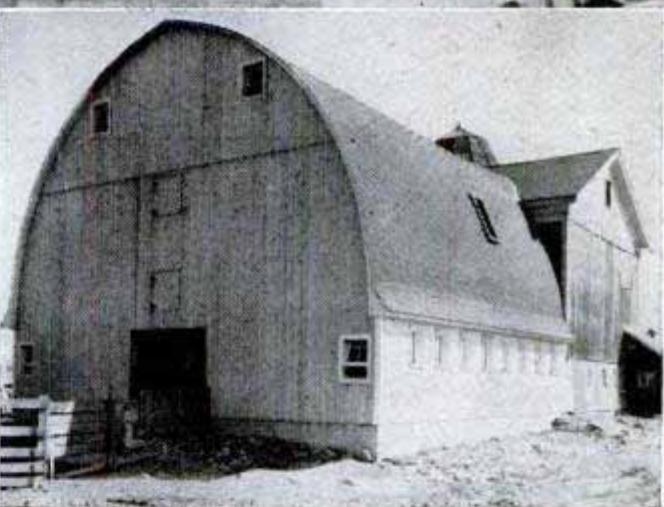
The first step in building the rafters is



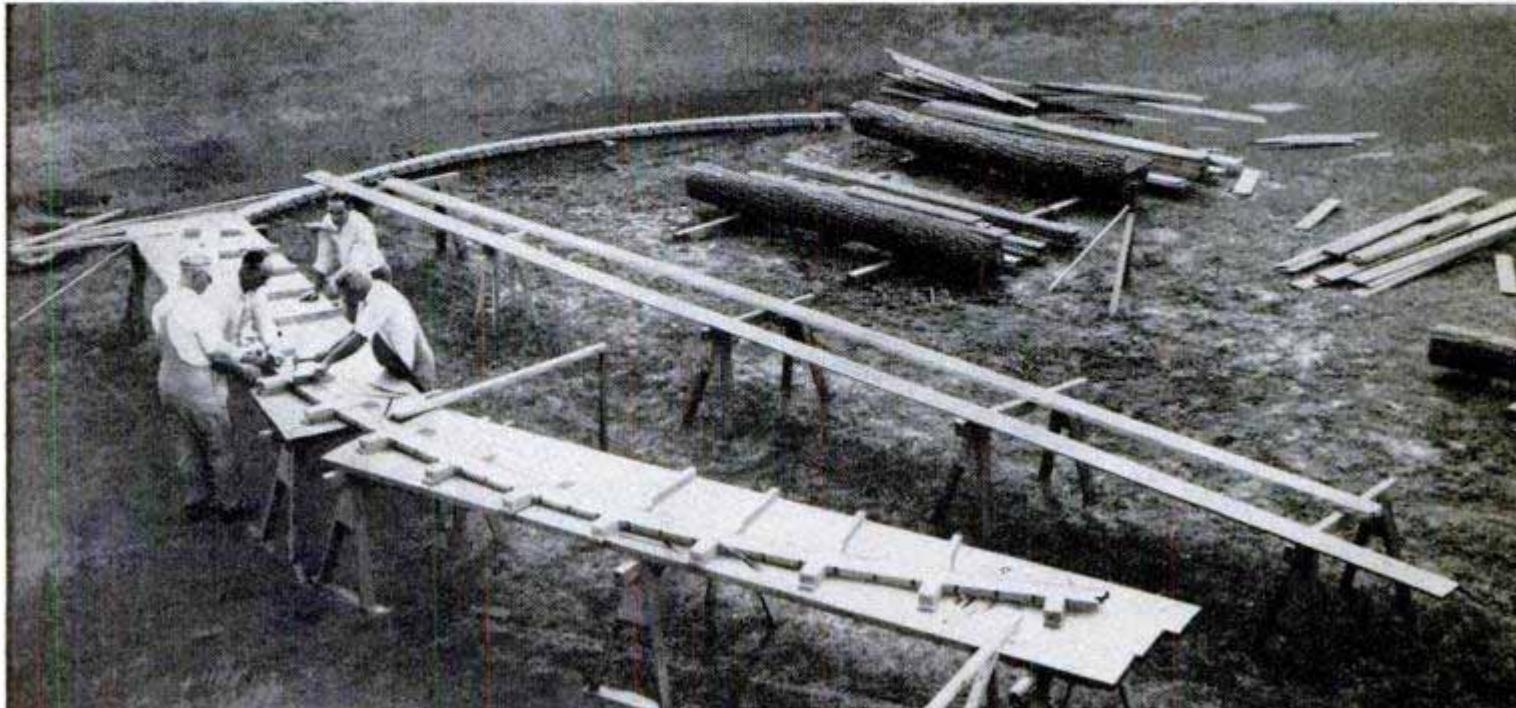
Speedy clamping of curved rafters in the bending jig is made possible by use of steel box strapping



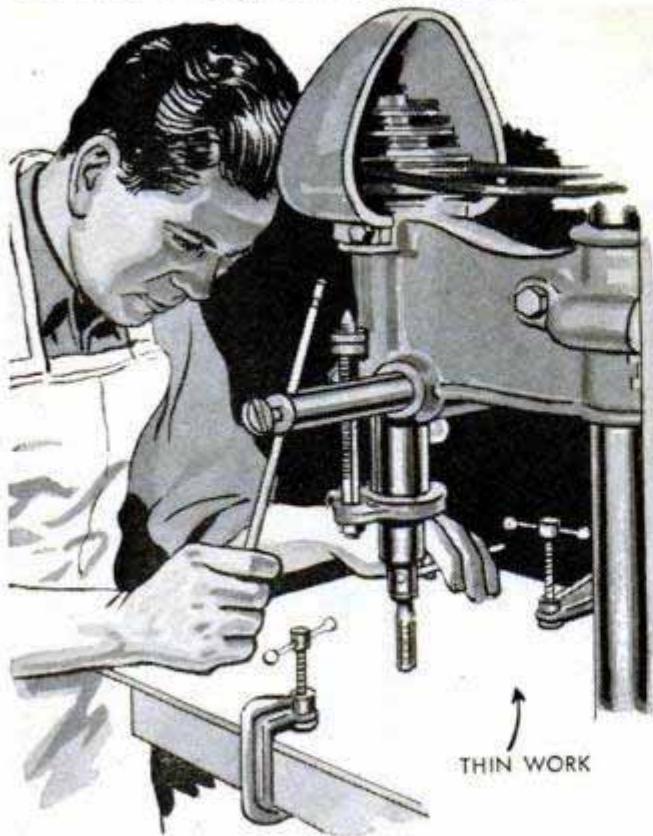
to construct a bending or forming jig by nailing planks to sawhorses placed on a radius equal to that of the rafter. The sawhorses must be beveled and braced to prevent movement under bending stress of the rafters. Then the radius and outline of the rafter are marked on the top of the planks, and stop blocks are spaced and nailed with their ends on the radial lines. This gives you the setup shown in the photo below. Next, 1 x 2-in. strips are sandwiched edge up between the forming blocks with a film of waterproof glue spread on all meeting faces. When the strips are in place they are strapped tightly at 12-in. intervals. ★★★



Above, rafters are joined at the ridge with hardwood gussets glued and bolted in place before unit is hoisted into position. Below, rafter being built up in the jig



## Tapping or Reaming of Thin Work Started Easily in Drill Press



To overcome the difficulty of starting a tap or reamer straight in thin work, one craftsman clamps the work to his drill-press table, inserts the tool in the spindle sleeve and, after removing the belt, rotates it by means of a pin inserted in a hole in the sleeve as shown. Another way of doing this is to chuck the tool and rotate it by turning the chuck by hand.

Frank M. Butrick, Alma, Mich.

## Gasoline Can Has Attached Funnel



bottom of the beverage can is removed with a can opener, preferably one of the rotary type. In this way, you always have a funnel at hand.—Howard J. Schweitzer, South Milwaukee, Wis.

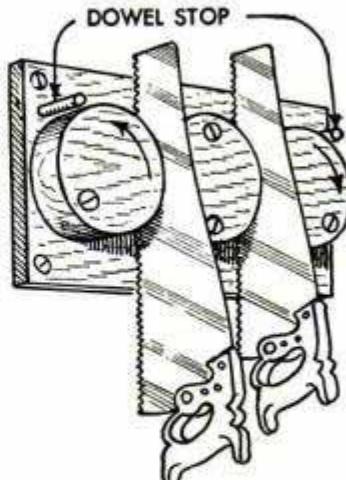
## Round File Used as Reamer

To enlarge a hole in a washer or piece of thin metal, use a round file that is larger in diameter at the handle end than the hole desired. First, chuck the tang of

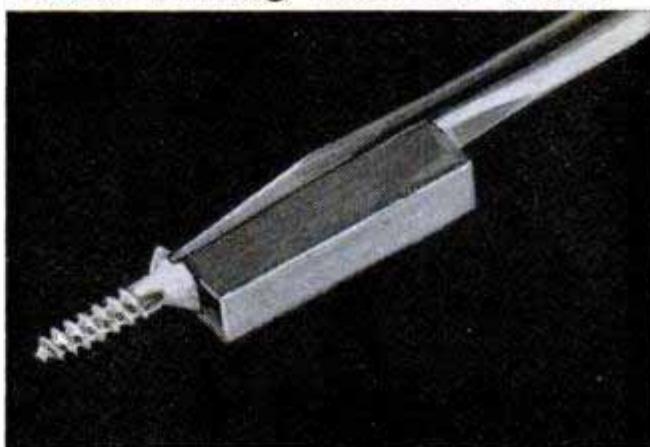
the file in a brace and then rotate it counter-clockwise in the hole, turning with light pressure until the desired size has been reached.—N. C. Darling, Orleans, Mass.

## Hanger for Storing Handsaws

A convenient method for storing handsaws in the workshop so they are ready for use, and at the same time are protected from dulling contact with other tools, is provided by this unusual saw hanger. Three hardwood disks are attached to a backboard as shown in the diagram, one being stationary and the other two pivoted off-center. The weight of the saw tends to pull the pivoted disk tight, thus gripping the saw. The grip of the disks on the saw can be improved by wrapping them with friction tape or other nonslip material.—J. R. Hicks, Centralia, Mo.



## Bar Magnet on Screwdriver Blade Permits Driving With One Hand



Here's a kink for holding a flat-head screw on a screwdriver blade so it can be driven with one hand. All that's needed is a small bar magnet which is placed against the side of the blade in the manner shown. The magnet clings to the blade while at the same time holding the screw slot over the tip of the blade for driving.

John J. Rea, Urbana, Ill.

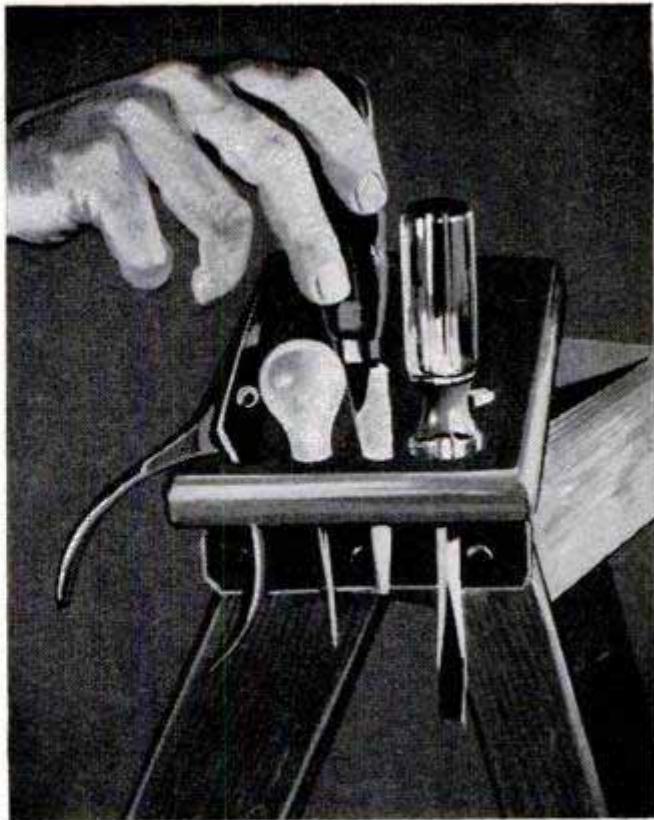
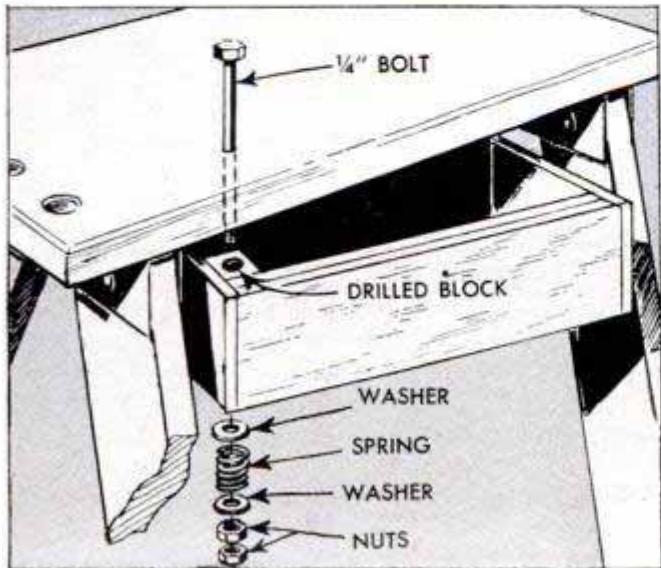
¶A package of old photo negatives placed in your fishing or hunting kit will come in handy for starting fires. Placed under small twigs and ignited, they give a hot, steady flame just long enough to get the fire going.

# STEPLADDER STEP-SAVERS

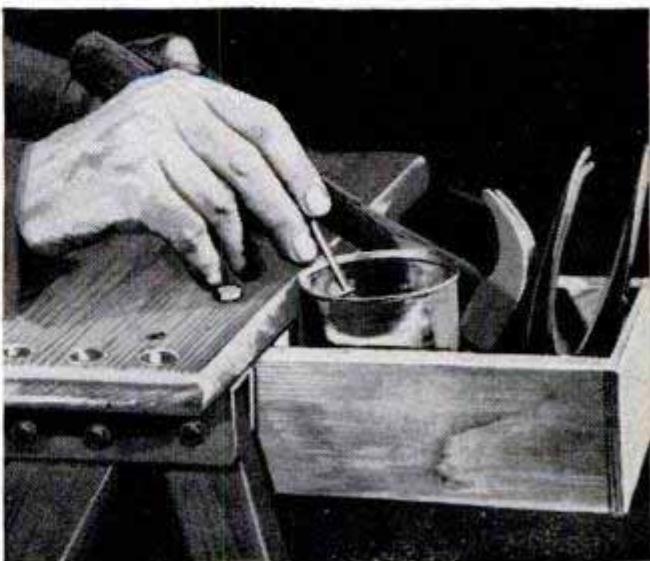
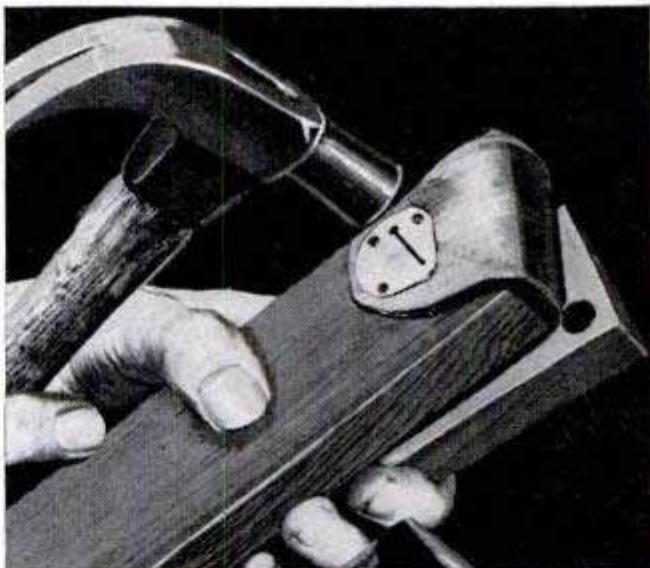
By Walter E. Burton

WHY GO UP and down, up and down on your stepladder while doing repair work, when a few additions to the ladder can save you the extra steps? For example, a pivoted drawer that swings under the ladder top will hold all sorts of objects, and paint cans placed in it are not likely to spill. The drawer should be just wide enough to swing without binding against the ladder leg. A hardwood block glued into one corner is drilled to receive a  $\frac{1}{4}$ -in. bolt on which the drawer pivots. A small compression spring between washers on the bolt holds the drawer tightly against the ladder top, and a stop block of wood under the top limits drawer movement. Another handy kink is to bore  $\frac{1}{2}$ -in. holes 1 in. apart near the ends of the ladder top for screwdrivers, pliers and other small tools. Finally, as a safety measure and to reduce marring of floors, the ladder legs should be equipped with shoes. Rubber or leather belting is folded around the bottoms of the legs and nailed in place.

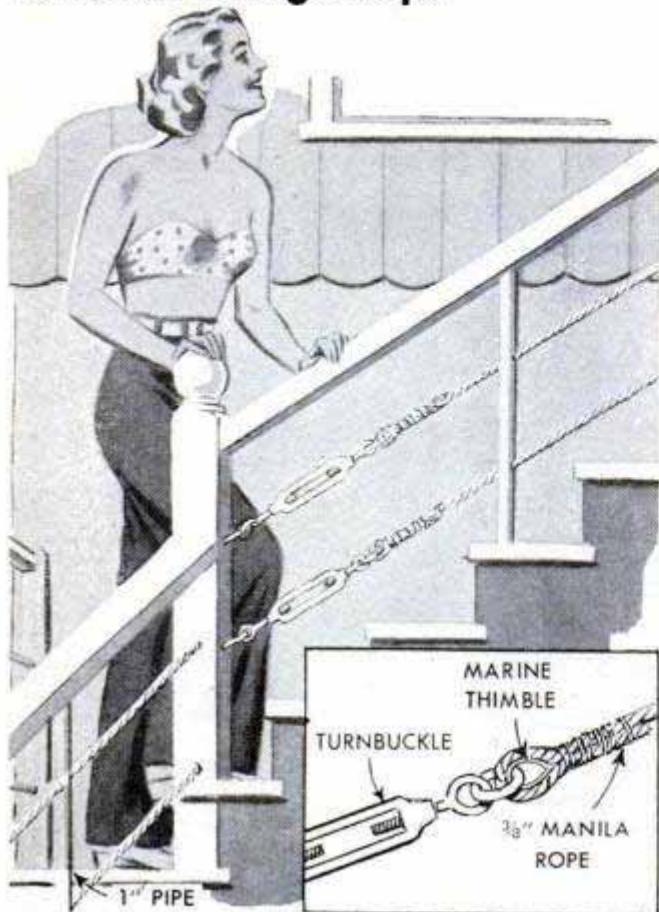
Below, width of pivoted drawer is same as width of ladder top. Lower right-hand photo shows drawer in working position, holding paint can and tools handy



Above, holes drilled in ends of ladder top to hold small tools. Below, shoes of rubber belting with the corners trimmed nailed to bottom of ladder legs



## Rope Rail Adds Nautical Touch To Beach-Cottage Steps



This rope rail will add an appropriate nautical touch to the steps of any beach cottage. The rail is made of  $\frac{3}{8}$ -in. manila rope wrapped around a marine thimble and seized to the standing part with wire. A turnbuckle is used at one end of each rope, both for the nautical effect and as a means of keeping the rope taut. The center posts of the stair railing are 1-in. pipes, drilled so that the rope can pass through them.

Hi Sibley, Nuevo, Calif.

## Specially Rigged Line Fools Carp With Sliding Sinker Arrangement



Fishermen who fail to land the crafty, large carp when using sinkers on their lines, will enjoy greater success with the use of this specially rigged line.

First, thread a sinker onto the line and then tie a small metal ring—just large enough to prevent its passing through the eye of the sinker—to the end of the line. Now tie the end of a leader or a short length of string to the ring and attach a hook to the other end. This arrangement usually fools the carp which, in most cases, spits out the bait the moment he detects the resistance

offered by a conventional fixed sinker. The specially rigged line, on the other hand, will allow him to take the bait in his mouth and make a run for it before detecting any resistance but, by then, the hook has had a good chance to become well set.

Willard Benner, Souderton, Pa.

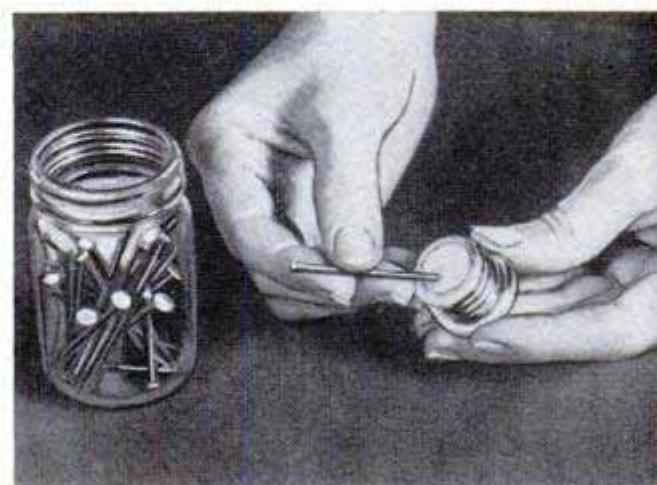
## Convenient Holder for Power Tool Provided by Coffeemaker Handle

The handle from a broken coffee-maker, will provide the craftsman with a convenient handle or bracket for holding a small, hand power tool in almost any position desired, while at the same time leaving both hands free for manipulating the work. The handle may be held in a vise or, after a hole has been drilled in the end, fitted with a dowel for insertion in holes drilled at various angles in a wooden block to regulate the position of the unit.



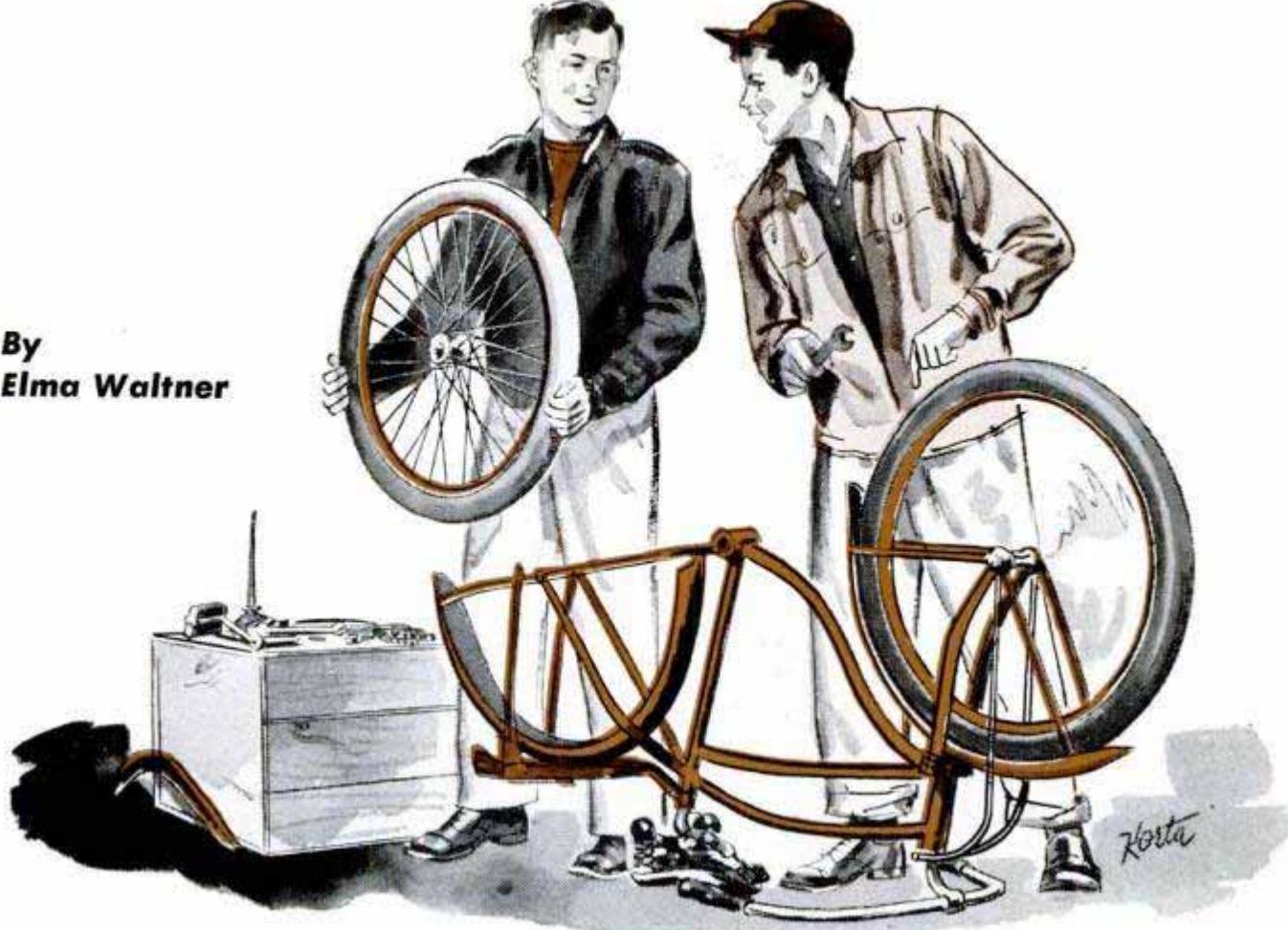
## Beeswax for Lubricating Screws Carried in Altered Fuses

A last-minute search for soap or wax scraps to aid in driving screws or nails won't be necessary if you keep a small quantity of beeswax stored in each jar or can of small parts. Small containers that are just right for the wax can be made from burned-out 15-amp. fuses by removing the centers and filling them with melted beeswax. In use, the point of a screw or nail is dipped into the beeswax as indicated.—Benj. Nielsen, Aurora, Neb.



When soiled combs and brushes are soaked in a detergent for 10 min., the dirt softens and comes out easily.

By  
Elma Waltner



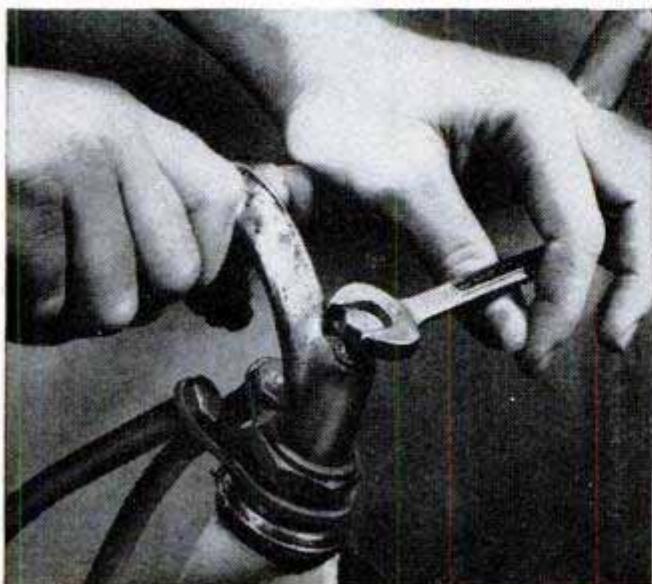
## OVERHAUL Your Bike

REGULAR OVERHAUL and replacement of worn parts not only keeps your bike in tiptop mechanical condition, but clean, well-lubricated bearings, properly inflated tires and correct wheel tension reduce bearing and road friction to the minimum. That's something to think about when there's a long hill on the paper route or on the way home from school.

If there is any looseness in the fork assembly it's a good idea to remove it and check the head bearing

Before inverting the bike to go over the wheel and crank bearings and the chain, check the handle bars and the fork stem. If there is looseness in the parts it's a good idea to remove the fork and examine the head bearing. If the bearing shows appreciable wear it should be replaced. Complete head-repair sets are available for this purpose. While you have these parts down,

To remove fork, first take off handle bars, then unscrew locknut and remove the cone and keyed washer



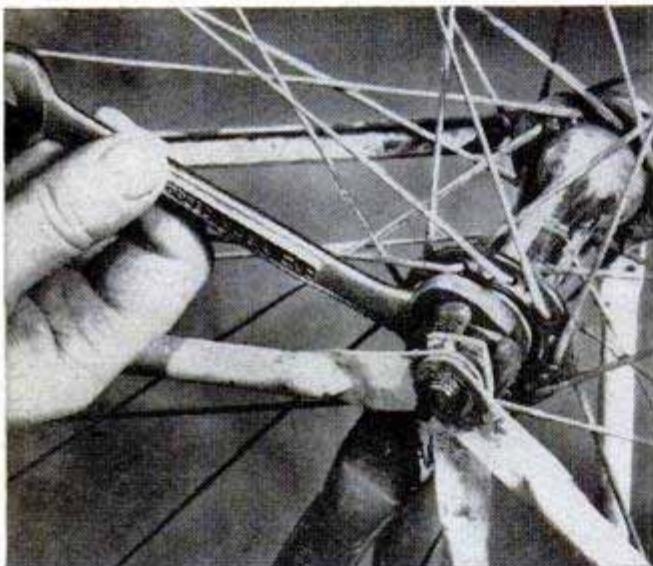
remove the front wheel by unscrewing the spindle nut and sliding the wheel out of the slotted fork. To disassemble the bearing, unscrew the adjusting cone and slide the spindle assembly out of the hub. Clean the parts thoroughly in a nonflammable solvent or kerosene. Relubricate the bearing and reassemble in the wheel hub.

Now invert the bike and remove the drive chain by loosening the master link. Then remove the rear wheel by first taking out the bolt which holds the brake-arm clamp. Although close attention must be given to proper procedure, it is not difficult to remove and reassemble the coaster brake. Be careful to keep the parts in order as they are removed and cleaned. Lubricate according to the manufacturer's instructions and reassemble. To gain access to the pedal-crank bearings, remove the pedal on the side opposite the sprocket, then unscrew the locknut and remove the keyed washer. The slotted cone can be backed

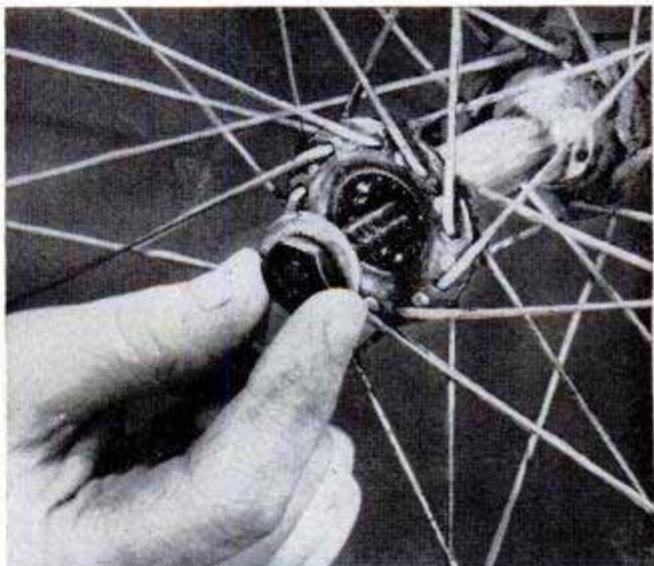
out with a screwdriver or with a special spanner wrench. This releases the crank assembly so that it may slide out of the housing. Clean the parts, making sure that you keep them in order so they may be reassembled properly. If individual bearing balls show pitting or undue wear it is advisable to replace the entire cluster, or set, rather than the single ball. This also is true of wheel bearings. When reassembling wheel and crank bearings, tighten the adjusting cones only to the point where the spindle turns freely without play.

Clean the roller chain in a solvent and check carefully for worn links. Replace any links or rollers which show excessive wear or pitting. After the chain is replaced on the sprocket, adjust the tension to about  $\frac{1}{2}$ -in. sag. Adjust the spokes of both wheels to a uniform tension with a spoke wrench. Reassemble the handle bars and adjust both bars and seat to a comfortable height.

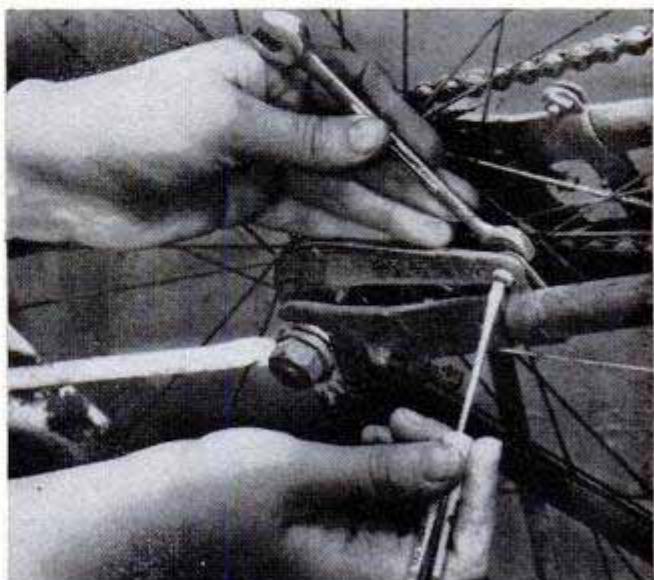
★ ★ ★



Above, after reassembling the wheel bearing, tighten adjusting cone just sufficiently to take out all end play, yet permit wheel to turn freely. Below, adjust wheel tension with spoke wrench, drawing spokes to a uniform tension. Be sure the wheel rim is true

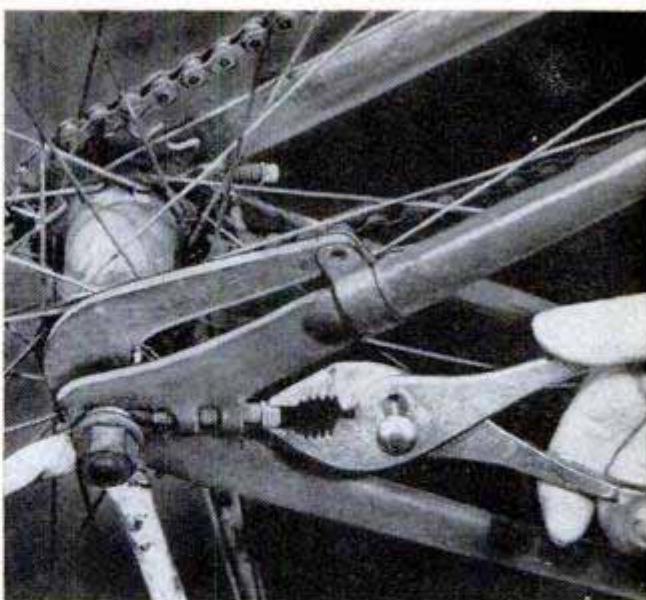


Above, withdraw spindle bolt carefully so that bearings do not drop out. Keep the parts in order so that they are easily reassembled. Below, before spindle nut is loosened remove bolt holding the brake-arm clamp. Then release the chain-tension screws





Special repair kits are available for replacing worn parts of the drive chain. Rollers and links which show excessive wear or rust pits should be replaced



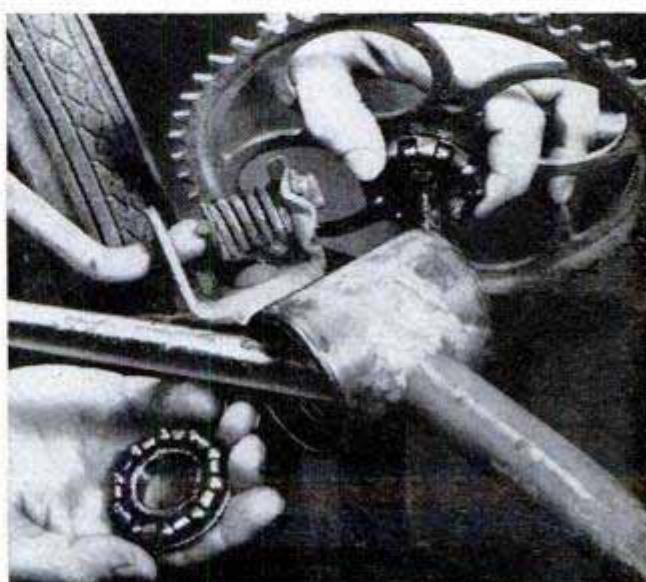
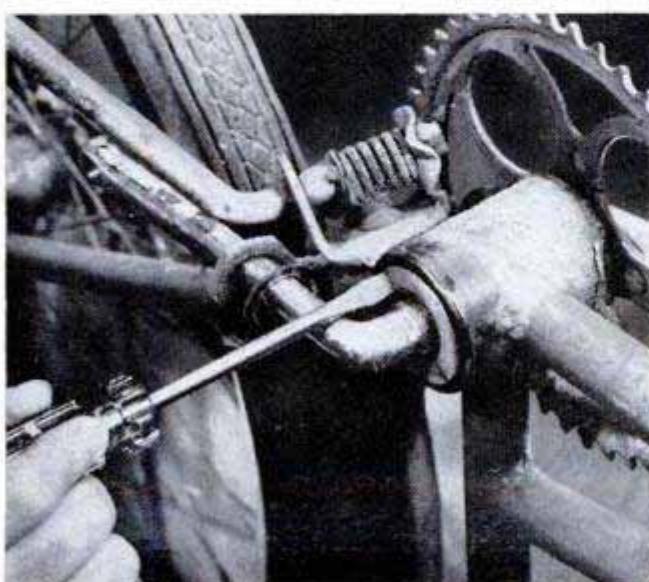
After cleaning and reassembling drive chain, the tension is adjusted by turning in the tension-adjusting screws. Ordinarily chain is adjusted to  $\frac{1}{2}$ -in. sag



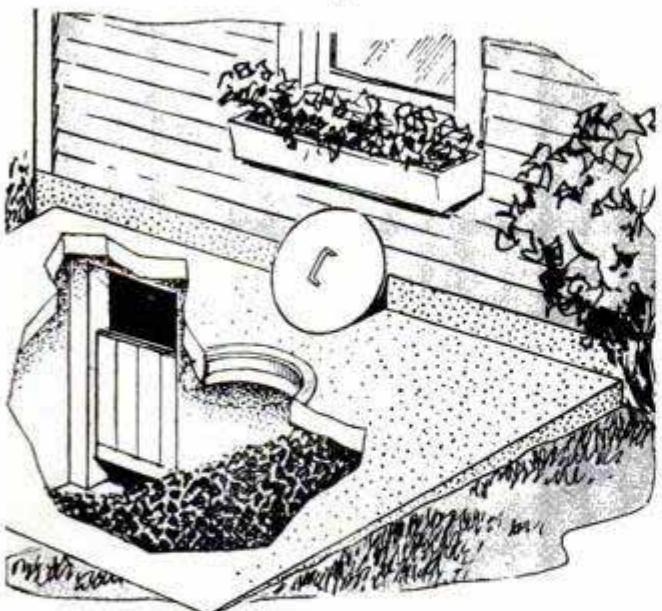
Above, remove pedal opposite sprocket as first step in disassembling crank bearing. Then unscrew the lock-nut and pull off keyed washer. Slotted adjusting cone is removed with a screwdriver as shown below, or with a spanner wrench supplied for the purpose



Above, as a final part of service checkup tighten saddle bolts to uniform tension. Below, final step in disassembly of crank bearing. Note that one bearing is being held in the left hand while crank is passed through housing. Clean these parts thoroughly



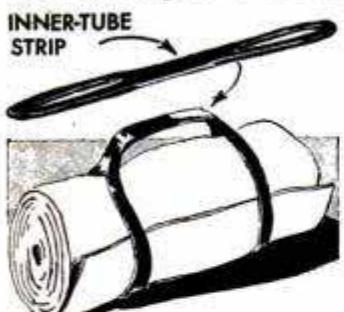
## Coalbin Outside Foundation Saves Basement Space



Built of reinforced concrete outside the basement wall of a house, this coalbin not only saves space but also eliminates much of the uncleanliness of a wooden bin erected indoors. A door opening cut in the foundation opposite the furnace is fitted with a removable wooden bulkhead that is open at the bottom to permit removal of coal piled high in the bin. The concrete covering the bin is sloped slightly to drain rainwater, while a hole covered by a steel lid is provided for supplying the bin. Furnace cement is applied around the edge of the lid to seal it against the weather.

A. M. Wettach, Mt. Pleasant, Iowa.

## Rubber Strip Provides Handle On Camper's Blanket Roll



Campers find that a slotted strip cut from an inner tube makes a convenient handle for carrying their blanket rolls. A slit is cut in each end of the strip just long enough to fit snugly over the rolled blanket. The width of the rubber strip will depend on the weight of the blankets, a wider strip being needed to support a larger roll.

## Matches Used to Boost Heat Of Electric Soldering Iron

Occasionally I find that heat from a very small electric soldering iron is insufficient for the job at hand. This usually occurs when the iron is too small, when only low voltage is available or when the iron is

used outdoors in the cold. In most cases, I am able to overcome these handicaps by periodically holding two or three lighted matches under the copper point just back of the tip to supply the necessary boost in heat.—Mrs. T. F. Watts, Charlotte, N. C.

## Pipe Cap Directs Gasoline Into Blowtorch Pan

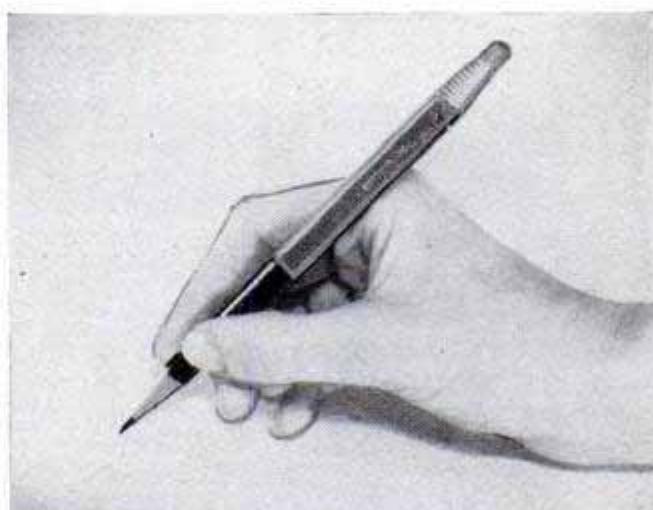
To speed filling the generating pan of a blowtorch, which usually is accomplished by opening the valve of the burner just enough to allow the gasoline to trickle into the pan, place a large pipe cap over the nozzle of the torch.

This will deflect the gasoline into the pan when the valve is opened wide, filling it in a matter of seconds. The pipe cap may be carried in the tool kit if desired.



## Pencil-Type Eraser Drilled in End Holds Pencil Stubs for Writing

Pencil stubs that are too short for practical use can be saved and used if they are inserted in the end of a pencil-type eraser. Ream out the end of the eraser with a  $\frac{1}{4}$ -in. drill to a depth of about  $\frac{3}{8}$  in. Break off the metal ferrule of the pencil and insert it in the prepared hole. Since an eraser of this type ordinarily outlasts the pencil stub, a number of stubs can be used in the same eraser. Also, this arrangement makes it possible for the eraser itself to be used down to its end conveniently.

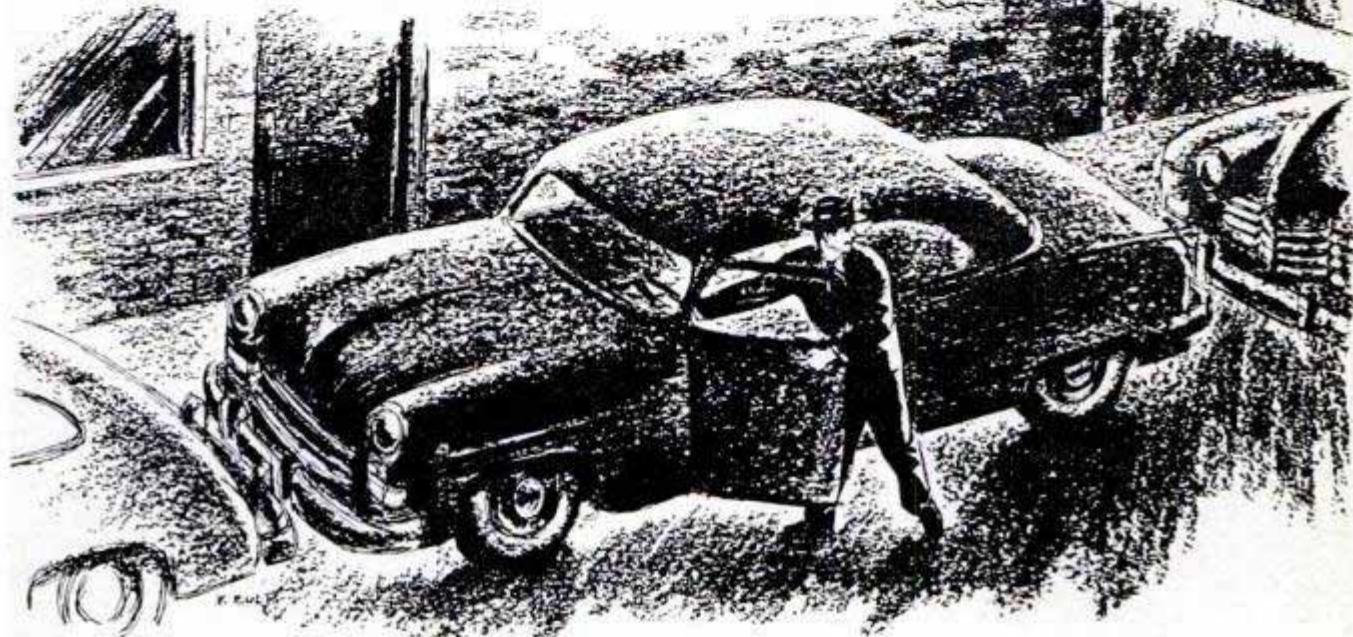


Ink stains can be removed from wallpaper by using a solution consisting of equal parts of household ammonia and hydrogen peroxide.

# STOLEN -

# \$19,000,000

By Ed Packer



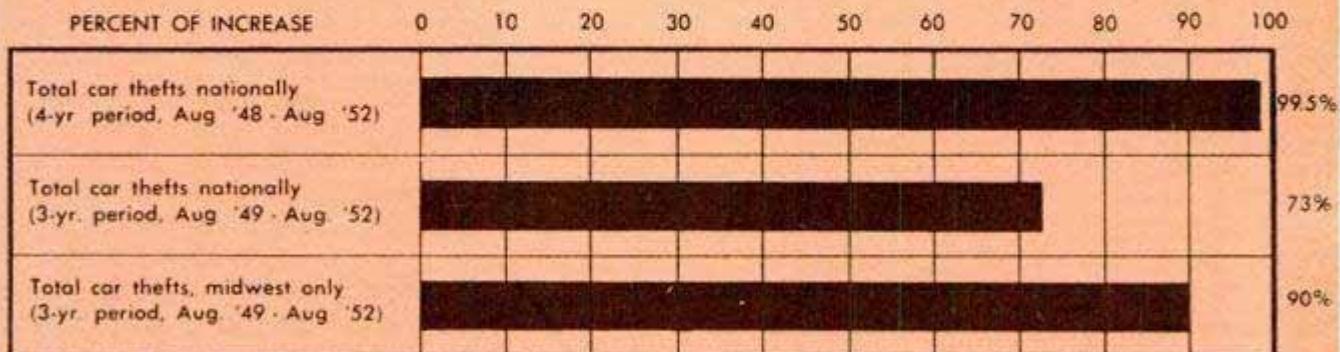
YOUR CAR could be one of an estimated 200,000 automobiles expected to be stolen this year—it might even be one of the 19,000 which will disappear completely, never to be recovered. This total loss amounts to almost \$19,000,000, but still it is only 9.5 percent of the staggering \$200,000,000 worth of cars stolen annually.

Most of the cars stolen are those parked with the keys in the ignition. The owners of these cars, guilty of negligence in the theft of their own autos, may be held ac-

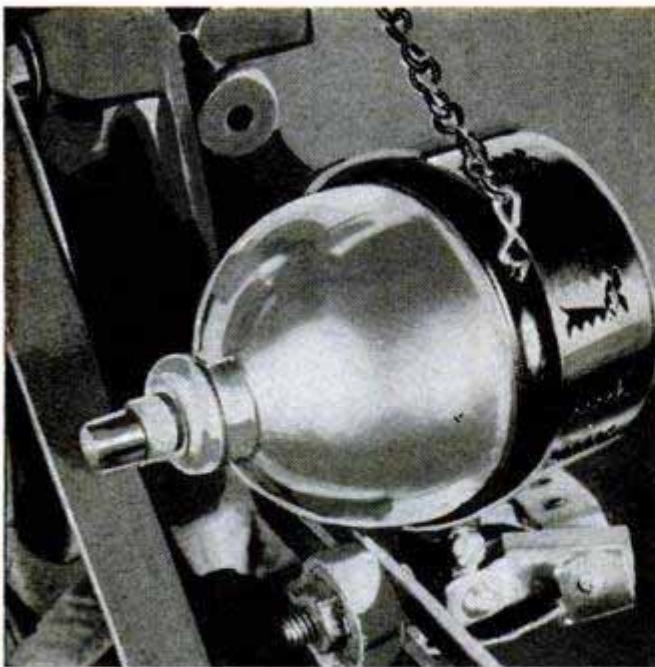
countable for further crimes or damage resulting from the use of their cars. J. Edgar Hoover, Director of the Federal Bureau of Investigation, urges all motorists to take the following precautions when leaving their cars: Lock both ignition and doors; whenever possible avoid parking in unlighted areas or overnight on the street; check the safety of your parked car periodically; do not leave any article of value in a parked car visible to passers-by.

No amount of care, however, will stop

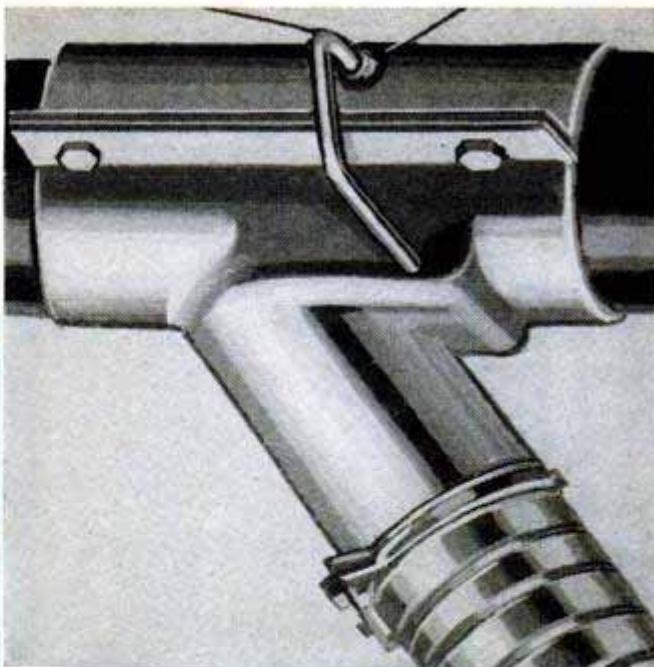
CURRENT AUTOMOBILE-THEFT STATISTICS



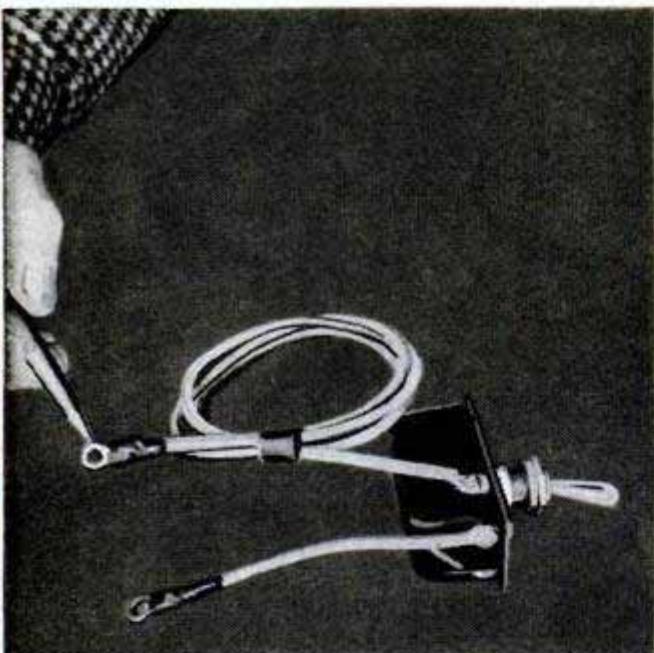
During the 4-yr. period from August 1948 to August 1952, the percentage of stolen cars recovered increased from 89.4 to 90.5. Thus, 9.5 percent of the 200,000 automobiles stolen annually cannot be found. Allowing an average value of \$1000 per car, this means that about \$19,000,000 is lost each year.



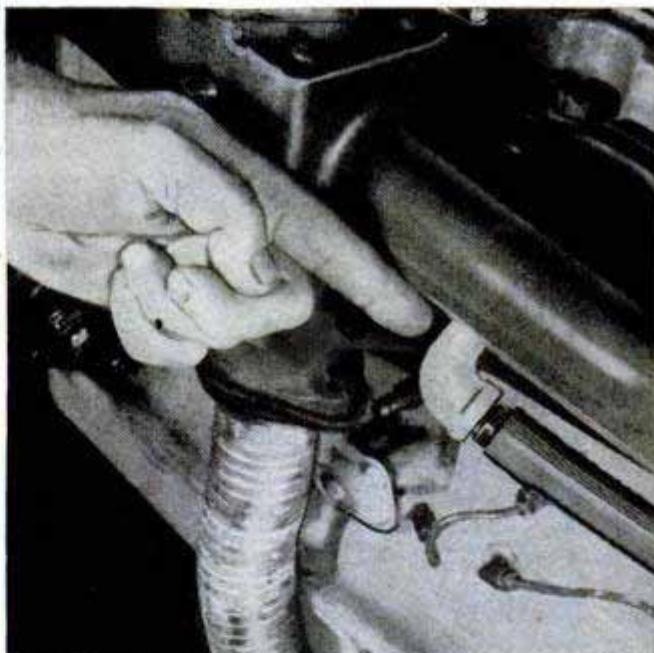
One end of chain attached to a lever behind the instrument panel allows the driver to bring this bicycle siren into contact with the fan belt when he parks his car. Releasing lever stops the siren



Control wire which opens exhaust-cutout valve can be brought under instrument panel, front seat or other inconspicuous place. The thief won't take time to find cause of thundering exhaust



By attaching lead indicated by pencil to distributor terminal and grounding short lead, this switch can be opened to make the distributor inoperative. The switch is concealed in the car



Manifold air bleed is best installed by removing manifold and turning  $\frac{1}{2}$ -in. pipe elbow into tapped hole on underside. Length of  $\frac{1}{2}$ -in. hose leads from elbow to valve under the instrument panel

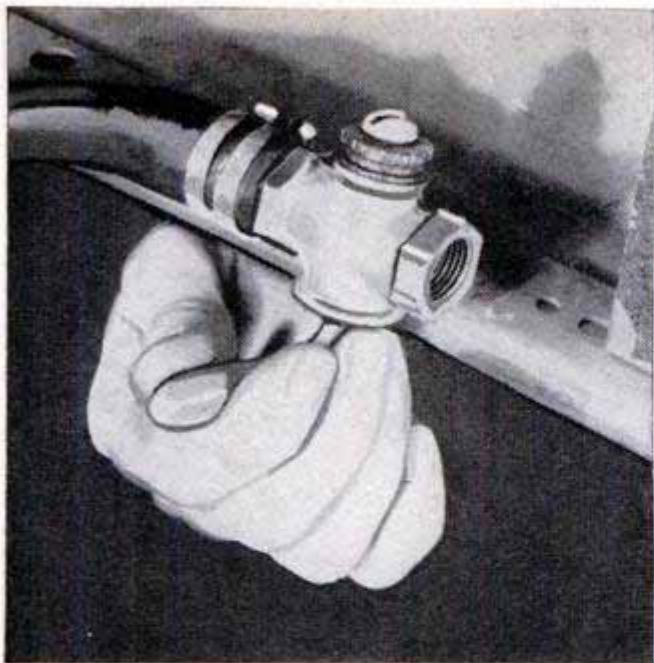
car thefts entirely; however, by being cautious and making it difficult to steal your car, chances are that yours won't become part of the auto-theft statistics.

The mechanical devices pictured here help protect your car in two ways—some of them make the car difficult to start or drive away and others, which are even more effective, draw attention to the thief. An ordinary bicycle siren, brought into contact with the fan belt when the car is parked, not only attracts attention as soon

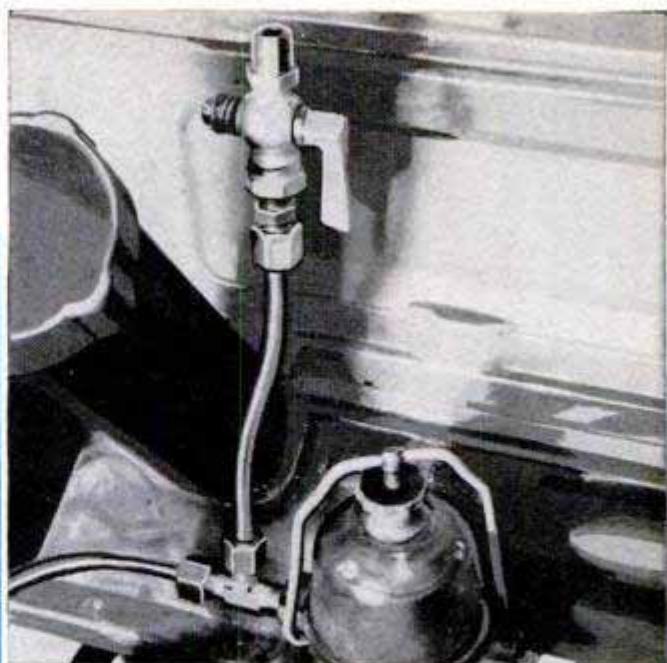
as the engine is started but sounds to the thief like an approaching police siren.

Because it's illegal in most areas and does an excellent job of making the car conspicuous, an exhaust cutout will make the thief decide quickly that yours is not the car for him. The valve control for the cutout can be located anywhere in the car.

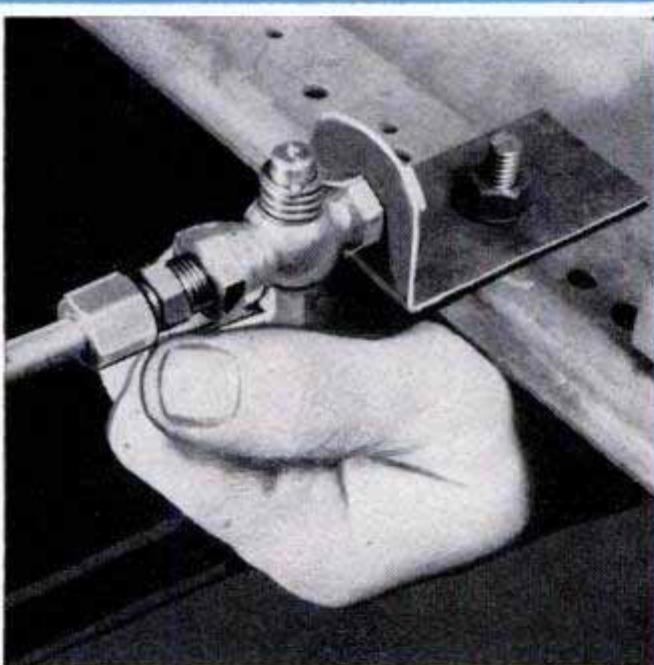
As most car thieves ignore the ignition switch and use a jumper, an auxiliary switch wired in series with the regular ignition switch is not especially effective.



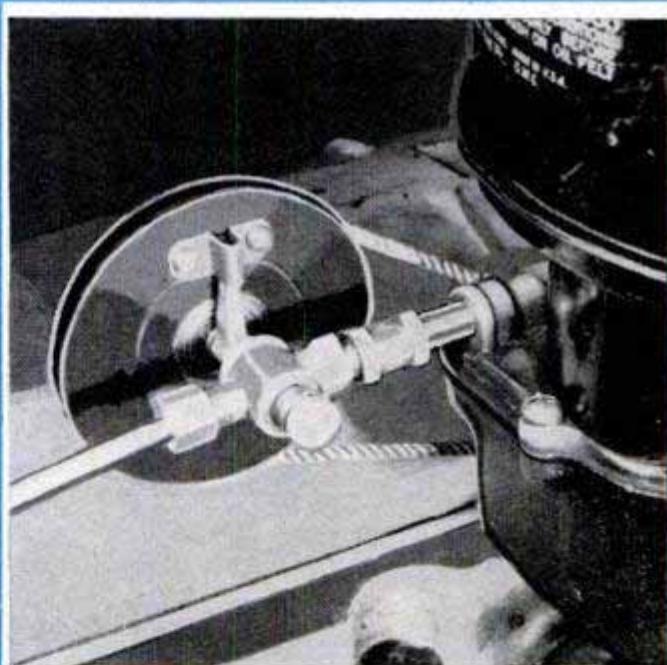
Simple shutoff valve fastened to back of instrument panel is opened to feed air into manifold and prevent starting car. Length of hose connects valve with the pipe elbow shown on opposite page



Air bleed can be installed on intake side of fuel pump by running tubing from fuel line to shutoff valve. T-fitting and valve are pictured above, valve normally is located as shown below, left



Bracket bolted to instrument panel holds shutoff valve for fuel-pump air bleed out of sight. It is possible to install several of these valves so that opening any one of them will stop car



Pulley-and-cable arrangement permits driver to shut off fuel supply after parking his car. Pulling one of the cables closes valve in carburetor fuel line while pulling other cable opens it

However, if one of the auxiliary switch leads is attached to the distributor terminal and the other lead grounded, the switch can be used to "kill" the action of the distributor and a jumper will not start the car. The switch leads are concealed by taping them to the regular car wiring.

A manifold bleed will prevent starting the engine when the valve is open and usually baffles the thief completely. A pipe elbow can be inserted in the manifold on the underside where it cannot be seen, and

the valve may be located under the instrument panel.

An air bleed on the intake side of the fuel pump is also effective in that it will only allow the car to be driven a block or two. The one disadvantage is that the thief may be able to drive the car to a location where he can work on it with less chance of detection. A similar type of device can be made by inserting a shutoff valve in the carburetor fuel line. Valve-control cables are extended to the instrument panel. ★★★



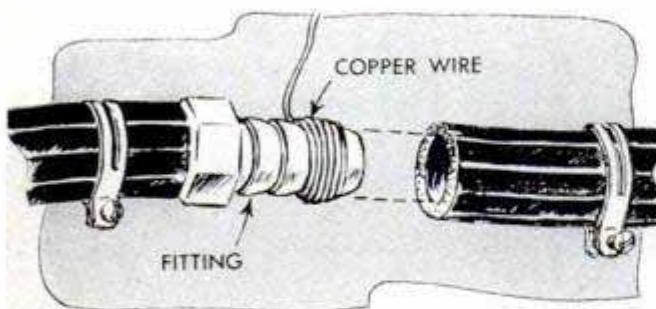
## Waste Space in Deep Drawer Accommodates Sliding Tray

To make use of the upper part of a deep drawer for storing small articles, fit it with a tray that slides on wooden strips nailed or screwed to the sides of the drawer. In providing the tray illustrated, a cigar box with its cover removed simply was covered with bright-colored paper. Larger trays can be assembled from  $\frac{1}{4}$ -in. plywood.

## Connector Fitting for Tubing Enlarged by Turns of Wire

When rubber tubing is too large to be clamped properly over a serrated connector fitting of the type shown, wrap one or more turns of light copper wire around each of the serrations and solder in place. This will serve to increase the diameter of the fitting while at the same time retaining the ridges necessary for clamping the hose securely.

Hugh Lineback, Stillwater, Okla.

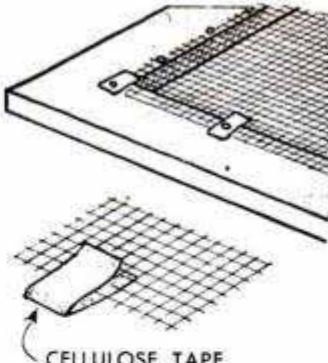


## Go Up in the Attic . . .

for additional living space by installing dormers in your home. If you need a sewing room, den, playroom or extra bedrooms, don't miss the story next month that tells how to install every type of dormer to utilize waste space in your attic.

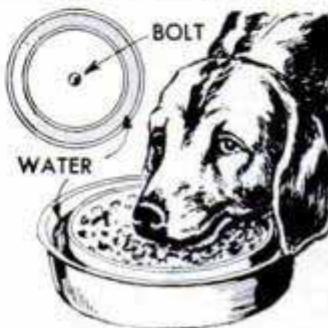
## Retacking Frayed Screen Wire

When the screen wire of a door or window pulls away from the frame, it is often frayed to such an extent that tacks will not hold it again. In such instances, strips of cellulose tape that are folded over the edge of the screen to form tabs as shown, will hold the screen in place when tacked to the frame. If tape is unobtainable, tack thin, narrow strips of wood over the frayed areas.



## Making Antproof Dog-Food Dish

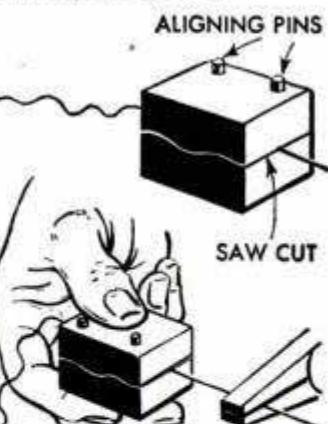
One kennel owner solved the problem of keeping ants out of the dogs' feed by using this special dish. Two pans, one an inch larger in diameter than the other, were bolted together to create a "moat" around the food. Filled with water, the moat effectively keeps ants out of the food. Aluminum pans must be bolted or riveted, but other types can be soldered. Use roofing compound around the bolt to prevent leaks.



## Jig to Straighten Kinked Wire

To remove the kinks from any small-gauge, malleable wire, such as furnace wire, use a jig made from a small hardwood block. Cut the block in halves, making a wavy saw cut as in the detail. Then drill the blocks for aligning pins. To use, open the blocks, insert the wire and grasp the blocks firmly in one hand while pulling the wire through with the other.

Leonard H. Lundberg, Marquette, Mich.

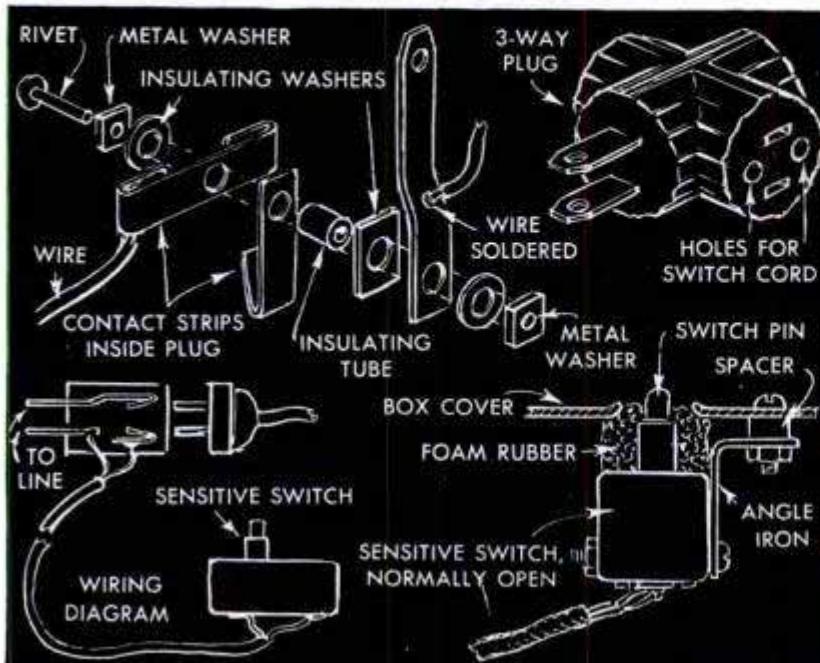


Modelmakers and hobbyists who require tiny washers for their work can make them easily by snipping them from the end of the plastic siphon tube of an underarm-deodorant bottle.

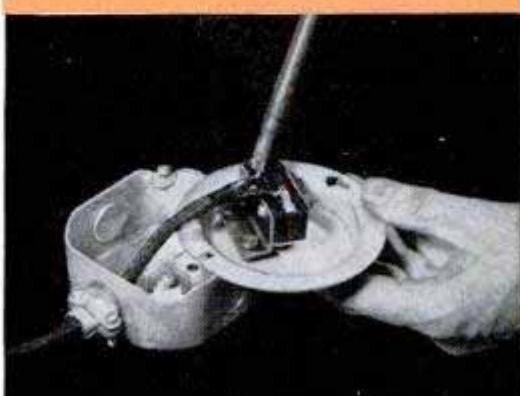
# Plug-in Foot Control Switch

By Walter E. Burton

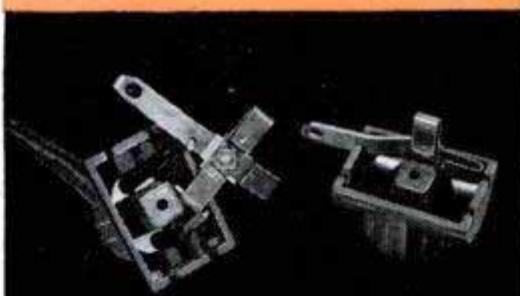
OPERATED BY a mere feather touch of the foot, this sensitive plug-in switch will be found handy for controlling a photo enlarger, a workshop power tool or other electrical appliance. The parts required are standard electrical items and include a 4-in. octagonal outlet box with a pendant cover, a non-metallic cable connector, a sensitive switch of the normally open type having a  $\frac{3}{16}$ -in. pin, a three-way plug and a few feet of rubber-covered cord. Take the three-way plug apart by removing the bolt. Inside you will find two cross-shaped contact assemblies, each one consisting of two spring-contact strips riveted to the prongs. The spring strips are removed from one prong by filing the rivet and then the holes in both the prong and the strips are enlarged to receive a short length of  $\frac{1}{8}$ -in. fiber tubing which is used to insulate the contacts from the prongs. Insulating washers fit over the tubing as shown in the pull-apart drawing below, after which the parts are reassembled in the order given and riveted together. Drill holes in the body of the three-way plug for the switch cord and solder one wire to the prong and the other to the spring contact. The rubber-covered cord is brought into the outlet box through a knockout in the side. The sensitive switch is mounted under the hole in the box cover with an angle iron. A piece of foam rubber is stuffed around the opening to keep out dirt.



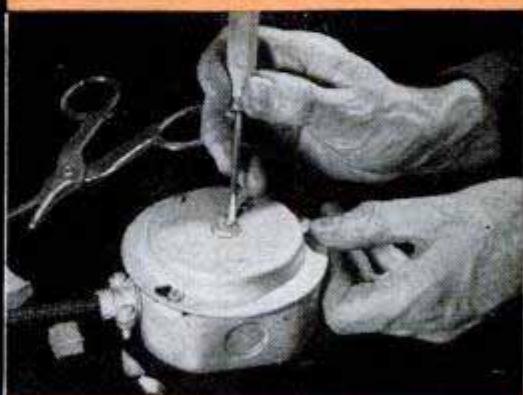
The appliance is plugged into the converted three-way plug which in turn is plugged into wall receptacle



Cord from altered plug enters box through knockout in side and is soldered to terminals of sensitive switch



This shows the two halves of the plug ready to be reassembled. One wire is soldered to prong, other to contact



Foam rubber around switch pin keeps dirt out of box. Note tape wound on cord to increase size for connector



## Darkroom Apron Folded To Catch Drippings

By turning up the bottom edge of a darkroom apron, you can provide an effective catchall for protecting your trousers and shoes from any developer or hypo that runs down the apron. Simply fold over the apron in the manner indicated and staple or sew the center and ends in place. It's a good idea to rinse the apron in water occasionally to clean out the fold.

Robert C. Florian, Chicago.

## Preventing Loss of Adapter Screw

When the tripod adapter screw on an imported miniature camera tends to loosen and eventually become lost, you may pre-

vent this by applying a short piece of cellulose tape over the assembly. Using a sharp knife, cut a hole in the tape just large enough to accommodate the tripod screw and trim off the overhanging corners. The tape will also act somewhat as a soft washer and help prevent the camera from twisting on the head of the tripod.

Robert Hertzberg, Jackson Heights, N. Y.

## Simple Lens-Shade Cover

The nonreflecting coating on a camera-lens shade, as well as accessory lenses fitted to the shade, should be protected from dust when not in use. An excellent one-piece cover which caps both ends of the shade and is quickly removable can be made for little or nothing from a strip of spring metal. Rounded to match the ends of the shade, the strip is bent to a U-shape and then lined with felt to provide a snug sliding fit over the lens shade.



# Popular Mechanics Bookshop

### Ten-Second Quiz

Is your car homeless? Do you need extra room to store storm windows, bikes, trikes, garden tools and other what-shall-I-do-with-it items? Can you saw a board and hammer a nail? Then your best buy is *Build Your Own Garage*, a book that shows even the amateur how to build an attractive and sturdy home for his car. Included are complete instructions and step-by-step photographs, drawings and diagrams that show every phase of garage construction from pouring the footings to nailing down the shingles. The price is only \$3.50 and it's available from Popular Mechanics Press, 208 E. Ontario St., Chicago 11.

### The Grass Is Getting Greener . . .

. . . and now's the time to renovate your yard. In *Lawn and Garden* you'll find answers to all your landscaping questions. This book, appropriately subtitled "How to

Grow the Best Lawn and Garden in Your Neighborhood," is a complete guide to lawn care: how to plant trees, flowers and shrubs; how to grow prize vegetables; how to build outdoor fireplaces and lawn furniture; how to fight disease and insect pests. The volume is fully illustrated and has a handy index to help you pin down the answer to any knotty question on lawn maintenance. The price is only \$2.50 from Popular Mechanics Press, 208 E. Ontario St., Chicago 11.

### Here's Concrete Information . . .

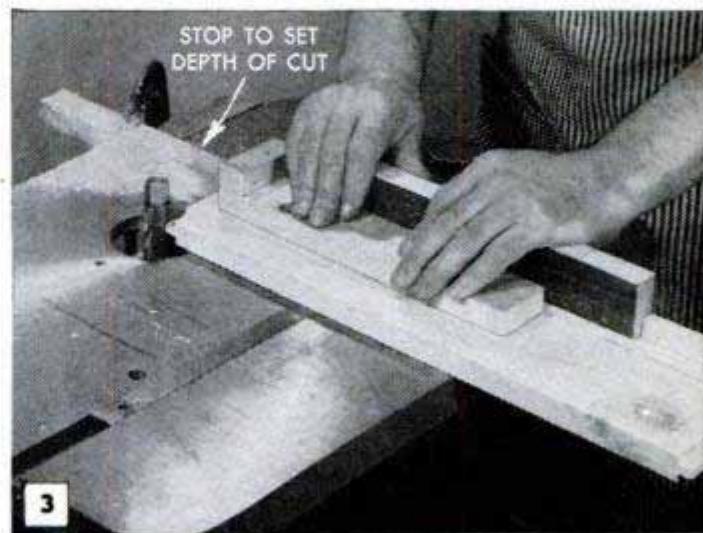
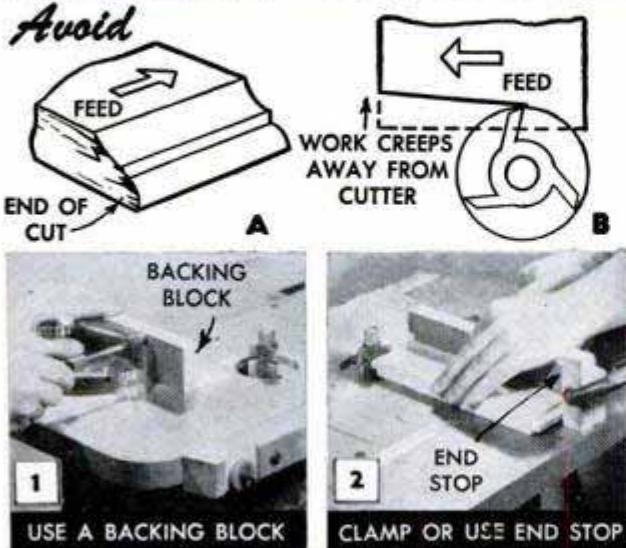
. . . on concrete, a mighty useful material around the home or farm. *What to Make With Concrete* tells you how to mix it and use it in hundreds of useful projects from inlaid sidewalks to outdoor furniture. There's a special section on coloring concrete and another on building sewage-disposal systems for the farm. Order now from Popular Mechanics Press, 208 E. Ontario St., Chicago 11. The price is \$2.00.

All books available from Popular Mechanics Book Department, 208 E. Ontario St., Chicago 11



# SHOP NOTES

*Avoid*



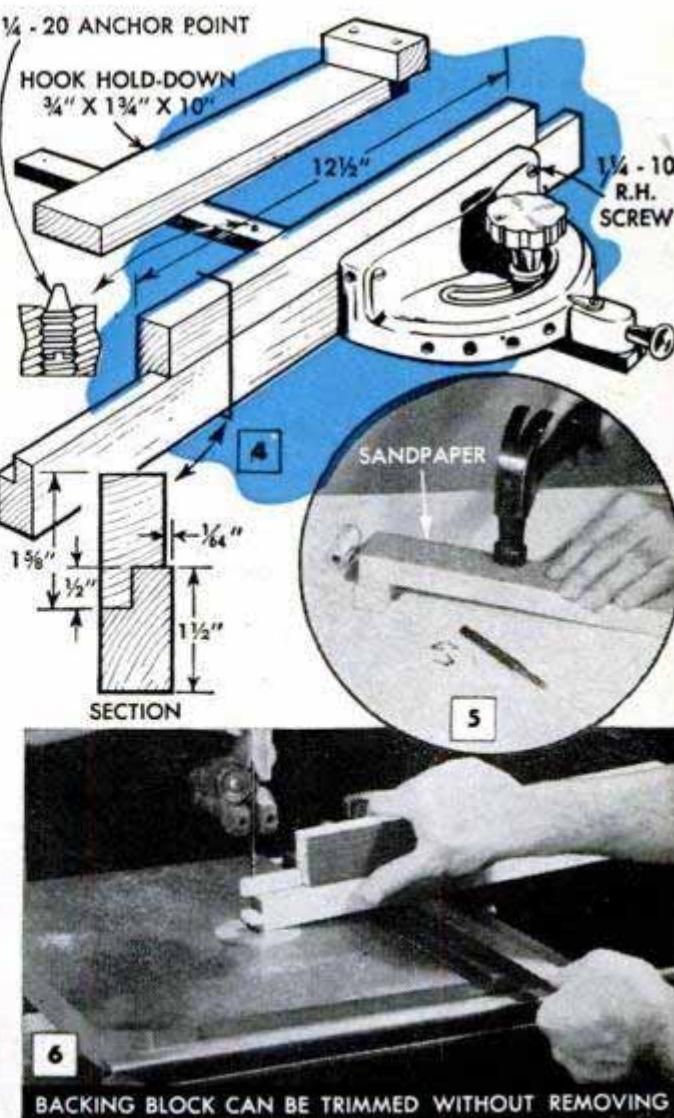
## SHAPER JIGS FOR END CUTS

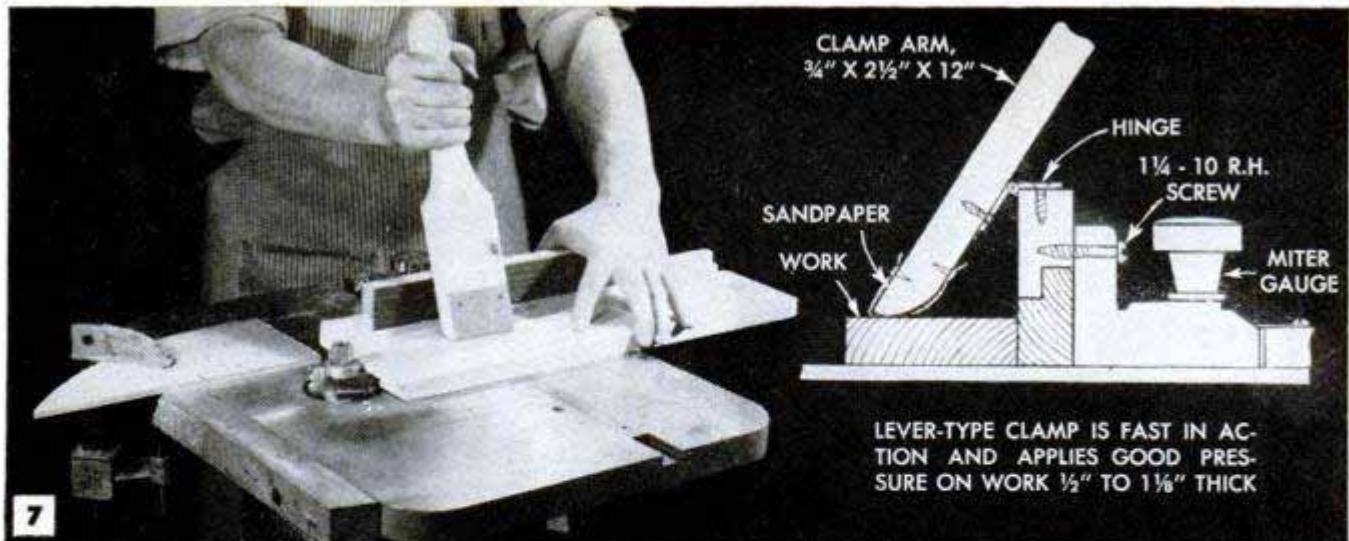
CREEPING and splintering of the work, the two chief problems of the craftsman in shaping end grain, can be prevented by the use of these improvised jigs. To avoid the creeping tendency, a stop must be used, as in Fig. 2, or the work must be securely clamped. Whiskering or splintering is eliminated by using a backing block behind the work, Fig. 1.

A backing block that is on the job all the time is the split, rabbeted style shown in Figs. 3 and 4. The top part is fixed to the miter gauge, while the bottom part can be sawed off and readjusted as needed for each new shape of cut, Fig. 6. If the sliding part is made about 20 in. long it will accommodate about 20 different cuts, after which it should be replaced with a new strip. The screws which hold the top part are loosened slightly to permit the bottom part to slide when resetting for a different shape of cutter.

Clamping the work to prevent creeping can be done in several ways. The hooked, hold-down block shown in Figs. 3 and 4 is quite simple. The bottom of this is covered with sandpaper, Fig. 5, and when pressed against the work will hold it securely. Set-screw anchor points, Fig. 4, positively will stop creeping and can be retracted when not needed. They cannot be used for every job, however, since they mark the work.

A hinged lever-type clamp is fast and effective, Fig. 7. The pin of the hinge should be swelled slightly by tapping





7

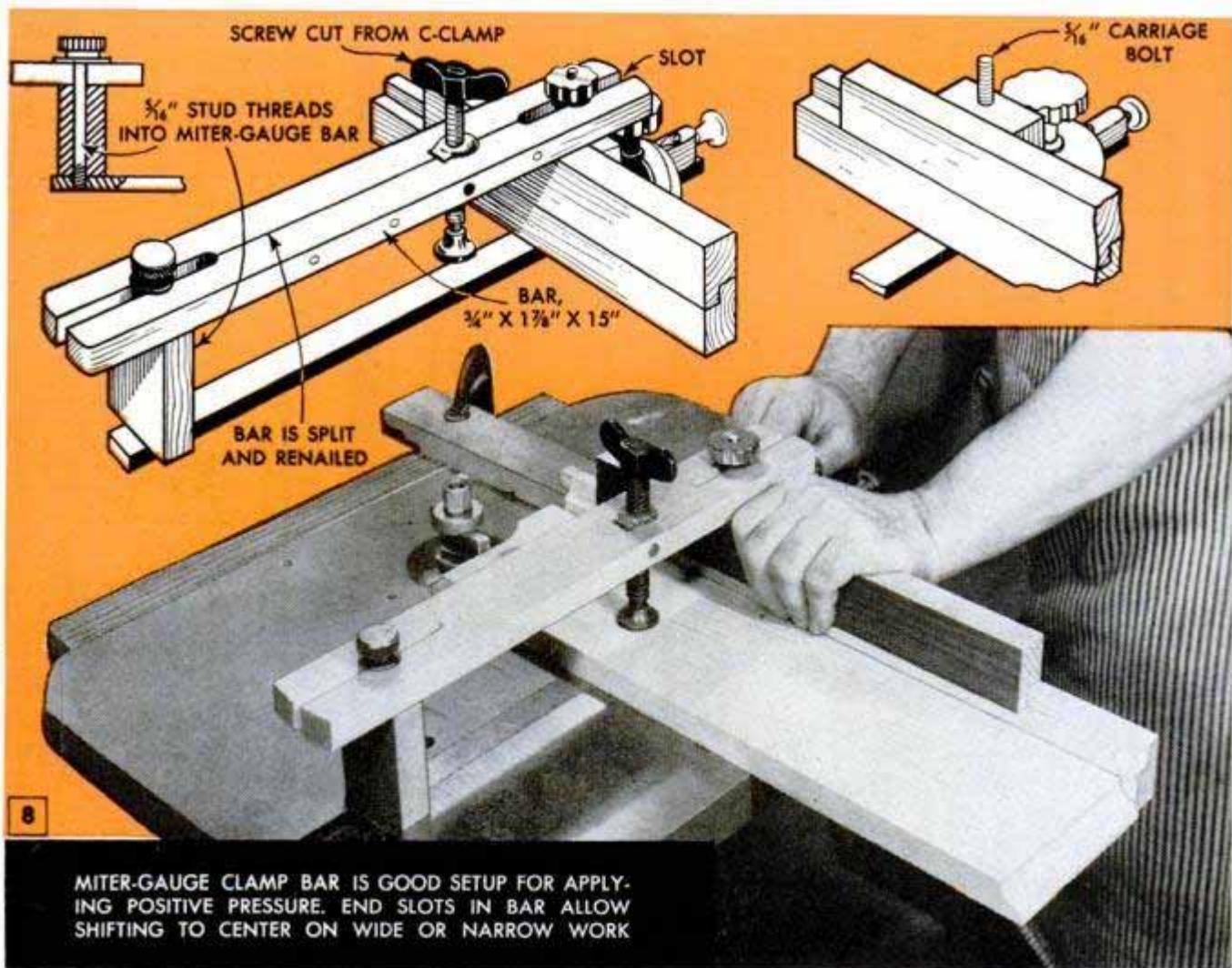
LEVER-TYPE CLAMP IS FAST IN ACTION AND APPLIES GOOD PRESSURE ON WORK  $\frac{1}{2}$ " TO  $1\frac{1}{2}$ " THICK

lightly with a hammer to take out any play. This clamp also makes use of a 1/0 or 1/2 sandpaper facing for traction.

For a positive-type clamp, the full-length clamp bar, Fig. 8, is the best style. The simple construction shown uses slots at both ends of the arm to allow adjusting the clamp to center on any width of work. The screw itself can be cut from any inexpensive C-clamp. If the swivel head is larger than the part of the frame through which the screw is threaded (the usual condition), it will be necessary to split the bar to permit fitting. A short section of the

clamp frame should be retained to take a pin or nail driven through the bar. The  $\frac{5}{16}$ -in. carriage bolt which holds the bar to the miter gauge is fitted through a small wooden block, which is then screwed to the miter-gauge facing. Bolt is centered with a miter-gauge pivot pin to allow using the clamp for 45-deg. and other angle cuts.

All fixtures shown work on the circular saw and for end cuts with the molding head. If your miter-gauge screw holes are too low to accommodate the split facing, screw a plain piece of wood to the gauge and fasten the split facing to it. ★★★



8

MITER-GAUGE CLAMP BAR IS GOOD SETUP FOR APPLYING POSITIVE PRESSURE. END SLOTS IN BAR ALLOW SHIFTING TO CENTER ON WIDE OR NARROW WORK

## Washer Soldered to Oil-Can Spout Holds Open Spring-Capped Oiler



A small washer soldered in place about  $\frac{1}{4}$  in. from the tip of an oil-can spout will make it easy to oil bearings having spring-capped oilers that are hard

to reach. The washer permits lifting and holding the oiler cap in instances where it can be reached with only one hand. A copper-rivet washer is preferable for this purpose.—Harvey Muller, Danboro, Pa.

## Windproof Flame for Blowtorch Pan

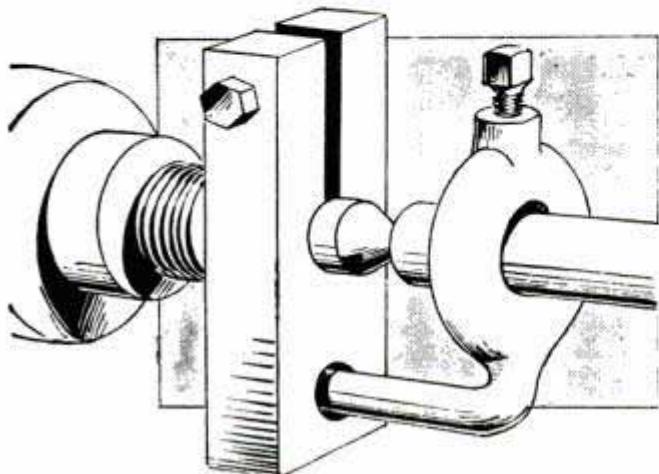
When using a blowtorch outdoors, it is sometimes difficult to preheat the torch because of the wind blowing out the flame in the pan. However, a windproof flame can be provided by bending a pipe cleaner to fit inside the pan. The pipe cleaner will serve as a wick to keep the flame alive.

E. P. Barnhart, Whittier, Calif.

## Improvised Lathe-Dog Driver

Modelmakers and toolroom machinists often find it necessary to improvise special lathe-dog drivers when setting up precision jobs on lathes and milling machines. The special driver detailed is designed to prevent chattering and undue backlash when machining light work between centers, using either the conventional dog or the clamp-type toolmaker's dog. It is made from a short piece of  $\frac{3}{8}$ -in. flat steel and is center-drilled and taper-reamed to fit the live center at the top end of the taper. It is then slotted through from one end to the tapered hole and is cross-drilled and tapped for a cap screw to provide a clamping action. A slightly oversize hole drilled near the opposite end takes the tail of the dog in the manner shown.

C. W. Woodson, Miami, Fla.

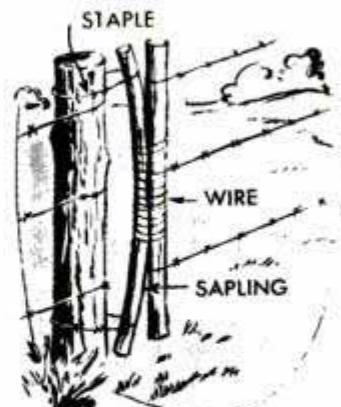


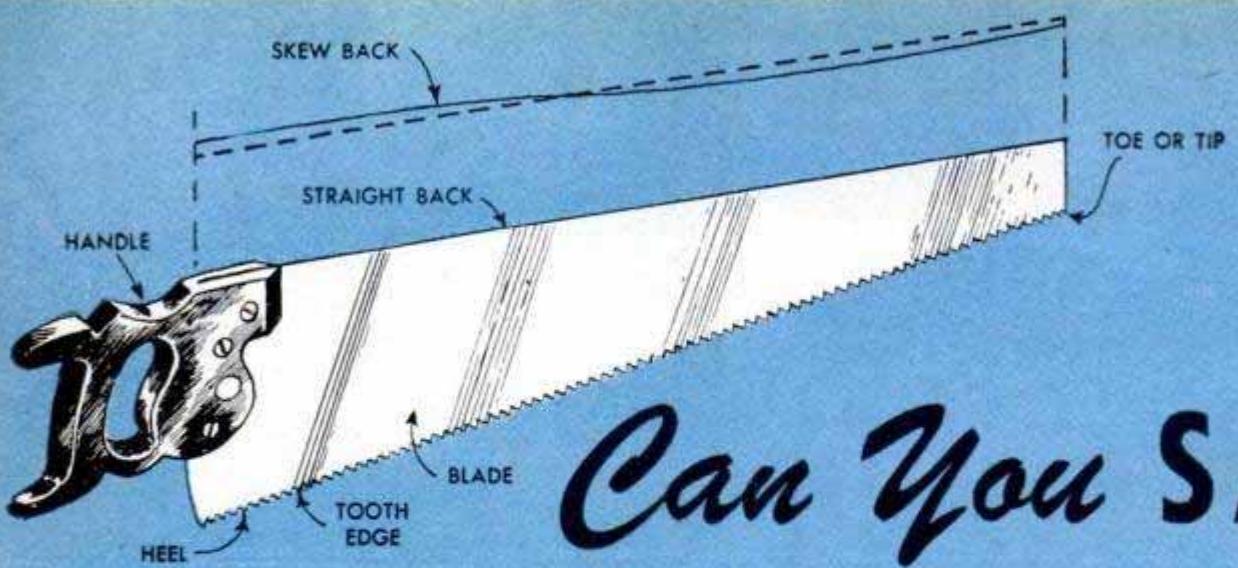
## Funnel in Top Step of Ladder Holds Electric Bulbs

While cleaning or replacing light bulbs in a ceiling fixture, one janitor uses a funnel to hold the bulbs safely. He bored a hole in the top step of the ladder, in which the spout of the funnel was inserted. The same arrangement would be practical as a small toolholder for a carpenter or electrician.

## Wire Loops on Field Gatepost Provide Easily Fastened Latch

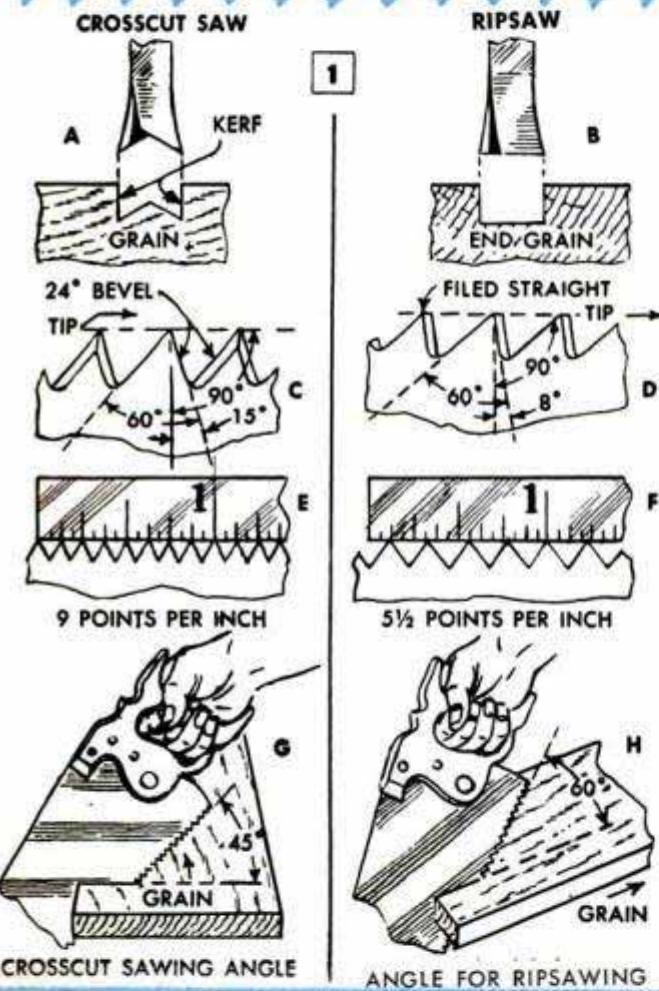
As field gates made of loose wire stapled to a lightweight post are difficult to close and latch, they are often left open, allowing livestock to pass through. To be sure that the gate is not left open for this reason, one farmer fitted the loose post with an easily operated latch. The latter is a stout, flexible sapling wired or bolted to the post so that ends of the sapling can be bent outward to engage the latching wires. This not only makes a practically effortless job of latching the gate, but the tension of the bent sapling holds the gate wires taut.





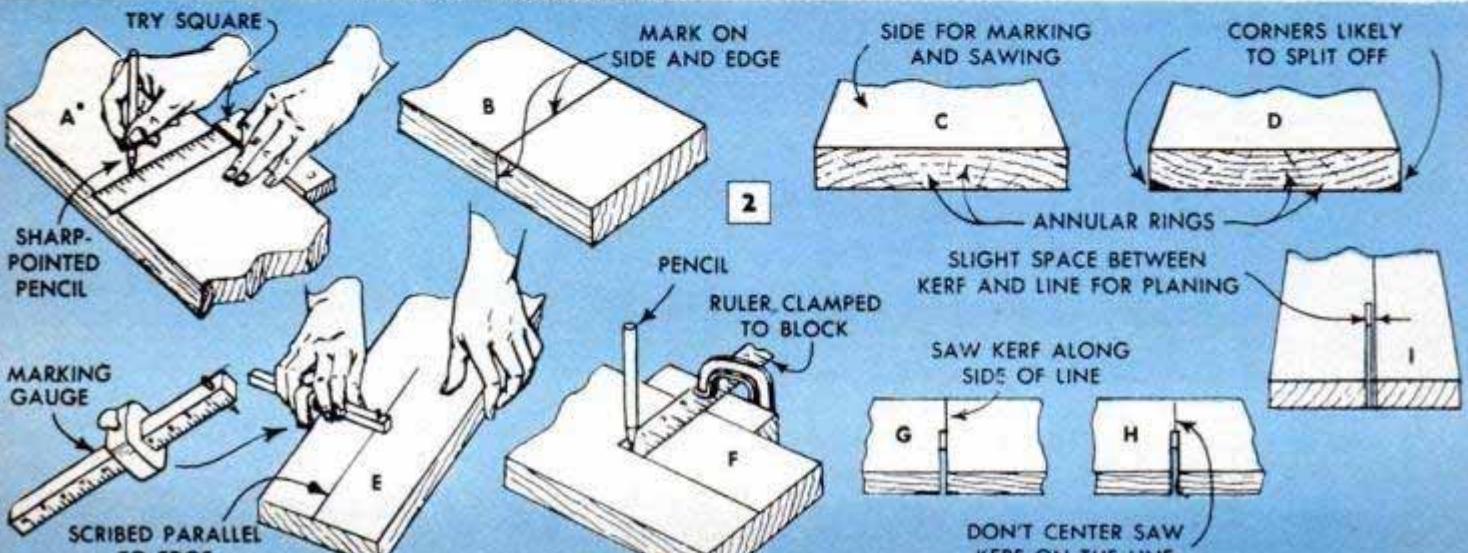
# Can You SAW

By E. R. Haan



**THERE'S NOTHING** difficult about sawing straight, but it's more than just pushing a saw back and forth. Accurate sawing depends on: (1) having a good sharp saw that is filed and set correctly; (2) using the right saw for the job; (3) applying the proper technique. Quality saws have taper-ground blades that are thinner at the back than at the toothed edge. This makes sawing easier and minimizes binding of the blade in the cut or kerf. Most homeowners first acquire a 20-in. 10-point crosscut saw, then add a 26-in. 5½-point ripsaw and a compass or keyhole saw.

**How crosscut and rip saws differ:** While they are interchangeable for short cuts, crosscut saws should be used for cutting across the grain in wood and ripsaws for sawing with the grain. The teeth of a crosscut saw are shaped like sharp-pointed knives and cut on both the forward and back stroke, making two parallel cuts, Fig. 1-A. The edges of the teeth are beveled at 24 deg. Ripsaw teeth have edges filed straight across to cut flat-bottom kerfs like



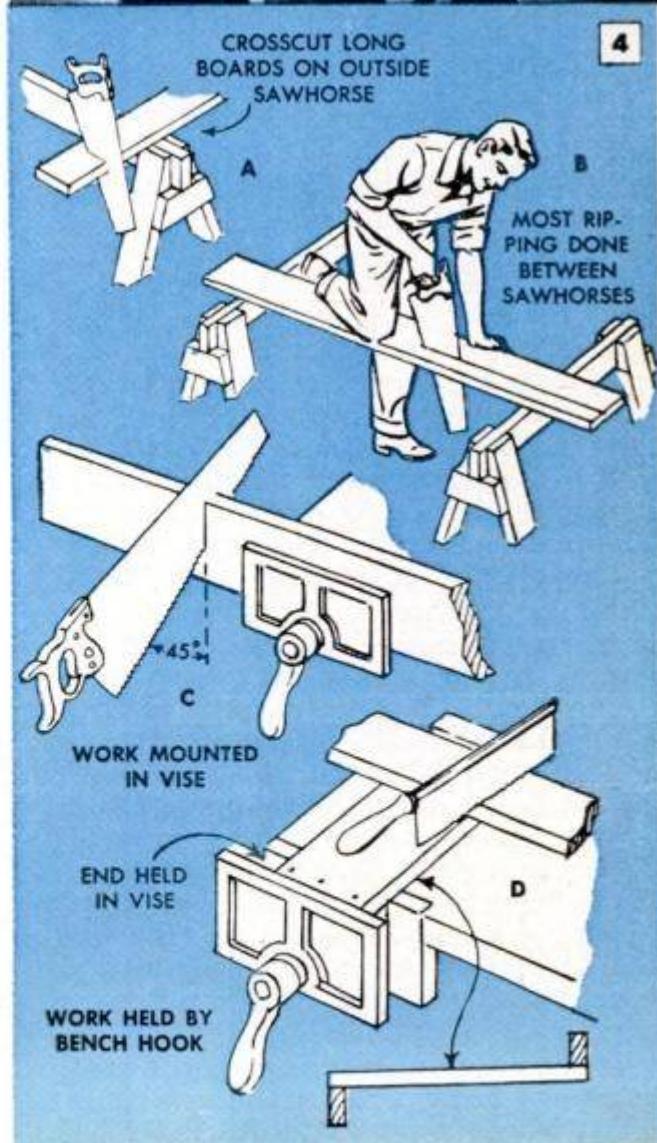
If using a handsaw is just plain hard work and the results are never as good as you expect them to be, here are some things you will want to know. Sawing can be done easily and accurately by following a few pointers of handsaw know-how

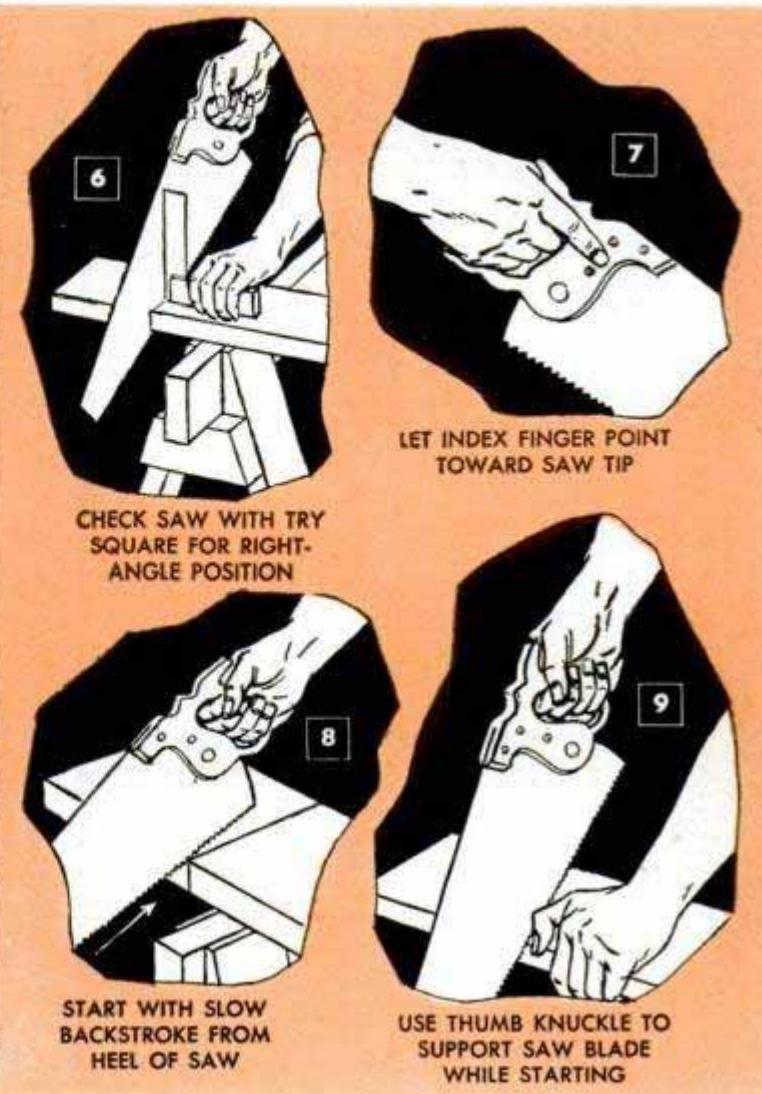
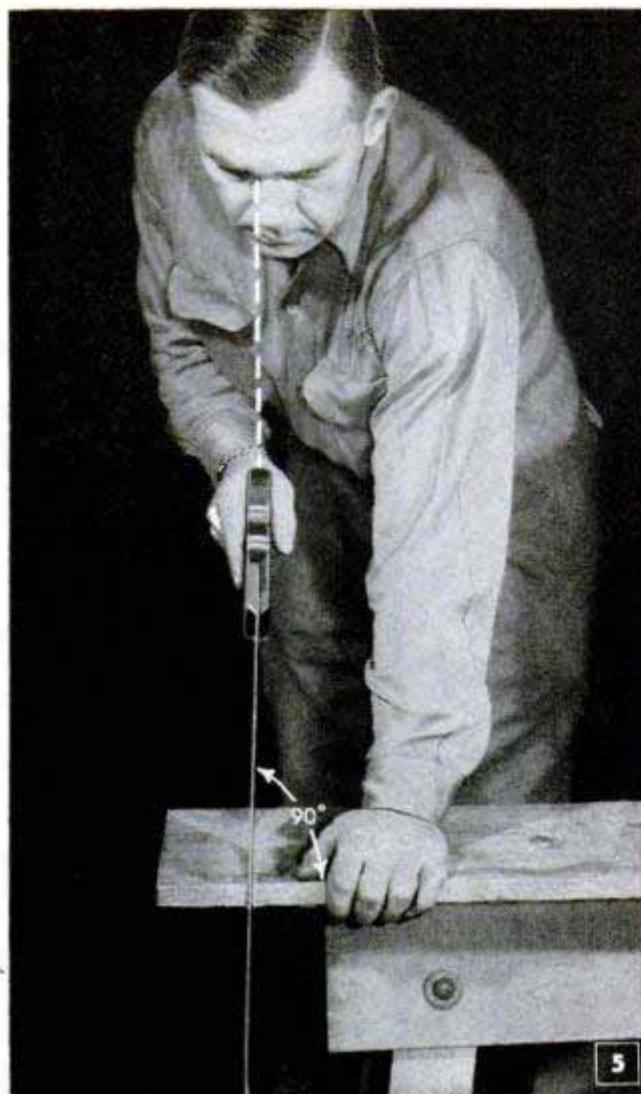
# STRAIGHT?

tiny chisels, detail B, and cutting is done only on the forward stroke. Teeth of both crosscut and rip saws have an included angle of 60 deg., but the front cutting edges of the teeth of crosscut saws are filed at a 15-deg. angle, as in detail C, whereas the front edges of ripsaw teeth have an angle of only 8 deg., detail D. Teeth points must be of equal height. The upper half of each tooth is bent outward or "set" in the direction of its flat side. Thus alternate teeth are set in opposite directions. The set determines the width of the kerf and, being greater than the thickness of the blade, allows it to move through the kerf easily.

The number of tooth points of crosscut saws varies from 7 to 12 points per in., detail E, while points of ripsaws number 5½ per in., detail F. Coarse-tooth crosscut saws cut faster but leave a rougher surface than fine-tooth saws. A coarse saw is best for cutting green or wet wood, while a fine one is best for dry, seasoned lumber. Cross-cut blades are regularly 20, 22, 24 and 26 in. long, although smaller ones are available. Those shorter than 24 in. are called panel saws. Ripsaws usually come in 26-in. lengths. The tooth edge of a crosscut saw should be held at a 45-deg. angle to the work surface, as in G. The best angle for ripsawing is about 60 deg., detail H, but on thin stock a 45-deg. angle is preferable.

**Accurate marking:** The exact position of a saw cut should be marked off on the work. For a cut at right angles to a straight edge, use a square, Fig. 2-A, and make a thin line with a scratch awl or sharp pencil. It is best to continue the line over the edge of the stock, detail B. Before marking, examine the end grain of the board. If possible, mark and cut from the side, as in detail C, so that the annual rings do not cross lower corners of the stock, detail D, which are apt to break off.





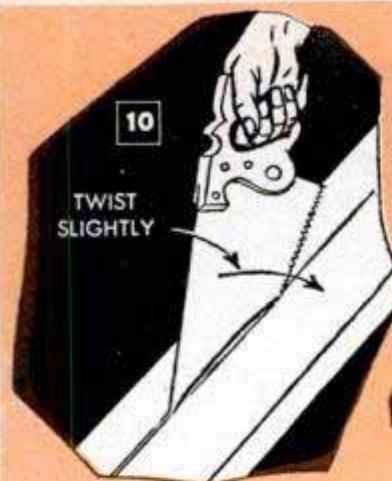
Guide lines for ripping can be made with a marking gauge, detail E, if the cut runs parallel to a straightedge. A ruler and block, detail C, allow marking with a pencil. If the edge of a board to be ripped is not straight, use a straight piece for marking. The saw kerf should always be made in the waste portion of the stock outside of the marked line, detail G, so that the cut piece will be of the exact length. Don't cut midway on the line as in H. If the edge of a ripsawed board is to be planed smooth to the line, make allowance for it as in detail I.

**Holding the work:** Work to be sawed must be supported firmly. For crosscutting, you can lay the stock across two sawhorses of equal height, Figs. 3 and 4-A, or on boxes or old chairs. Hold the work with your hand or knee. When crosscutting, saw the work on the outside of one horse, close to it, rather than between horses. Ripsawing long boards is done best between horses or other supports, detail B. Short pieces to be ripsawed can be placed lengthwise on a horse. Work can be clamped in a vise for crosscutting, detail C, or you can use a bench hook as in D.

**Sawing position and end grip:** When sawing, bring your eye above the saw blade as in Fig. 5 to observe if the blade is being

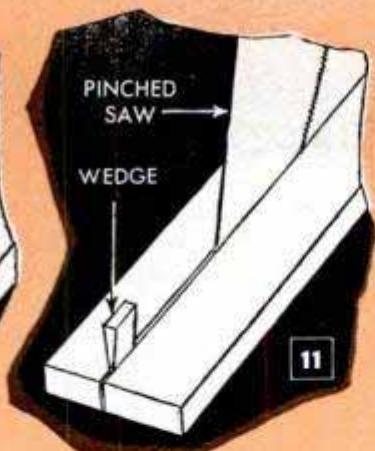
held perpendicular to the work surface. If in doubt you can check with a try square, Fig. 6. Grasp the saw handle comfortably and easily with the index finger pointing toward the saw tip, Fig. 7, to help in guiding the blade.

**Starting a cut:** Whether crosscutting or ripping, start a cut by setting the heel of the blade alongside the mark, Fig. 8, and then pulling the saw back slowly, guiding the blade with the thumb of your left hand about an inch above the teeth as in Fig. 9. The palm of the hand rests on the work. The correct sawing angles, 45 deg. for crosscutting and 60 deg. for ripping, should be maintained throughout cutting. The starting stroke should be almost half the length of the blade, without any pressure. The weight of a saw is enough to start a kerf if the blade is sharp. Never start with a down stroke; you may apply too much pressure, splintering the wood at the edge or causing the saw to "jump." After the first backstroke, push the saw forward without increasing the pressure and continue with short strokes until the kerf is deep enough to retain the blade. Then move your hand about 6 in. from the saw and increase the length of the strokes gradually to full blade length, using very

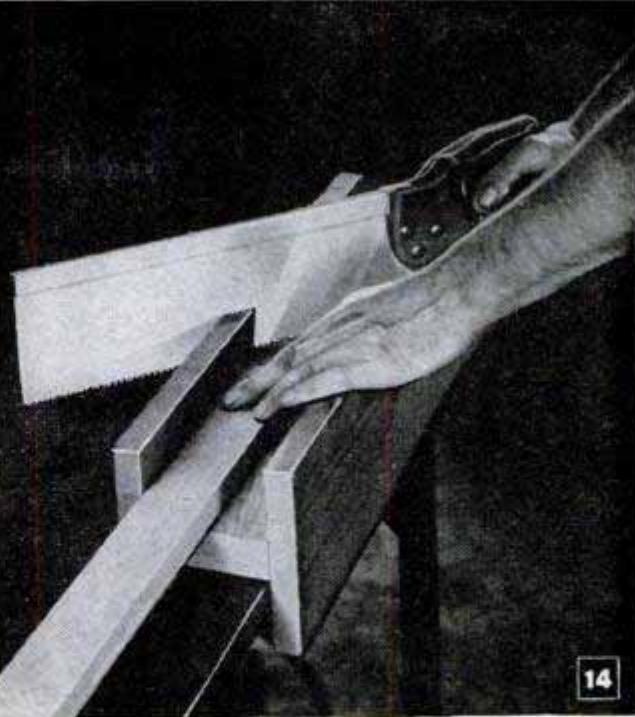


10

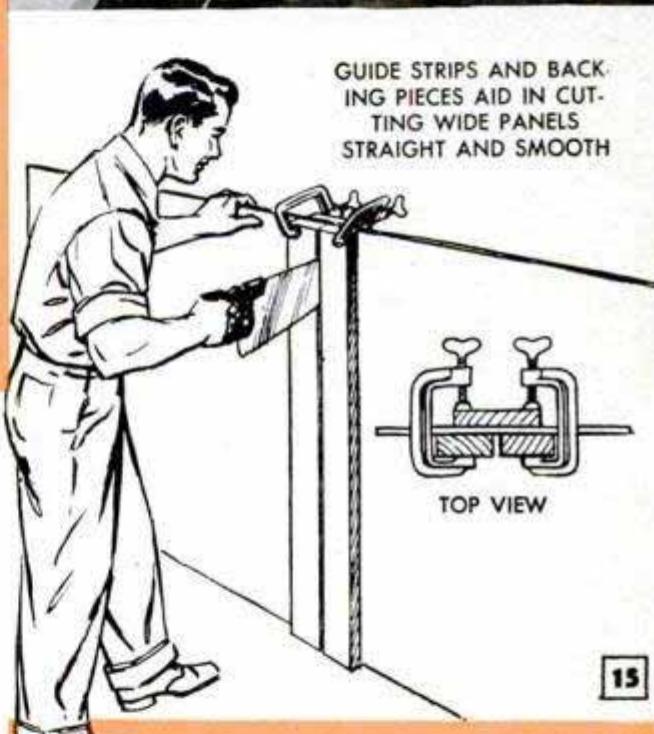
TWIST SLIGHTLY

PINCHED SAW →  
WEDGE

11

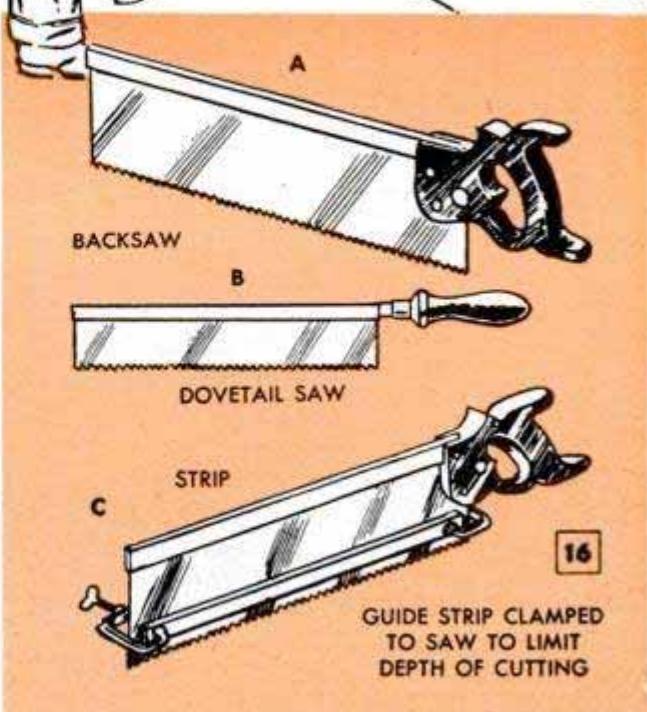
RETURN SAW TO  
MARKING LINEDON'T USE SAW TO PRY  
OFF WOOD BEFORE  
FINISHING THE CUTHOLDING WASTE END TO  
PREVENT SPLINTERING  
AT FINISH OF CUT

14

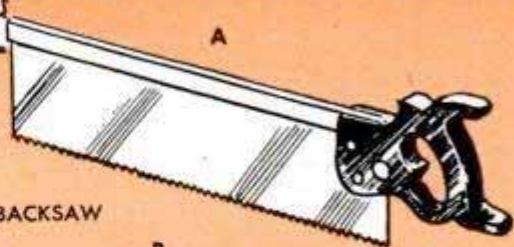
GUIDE STRIPS AND BACK-  
ING PIECES AID IN CUT-  
TING WIDE PANELS  
STRAIGHT AND SMOOTH

TOP VIEW

15



A



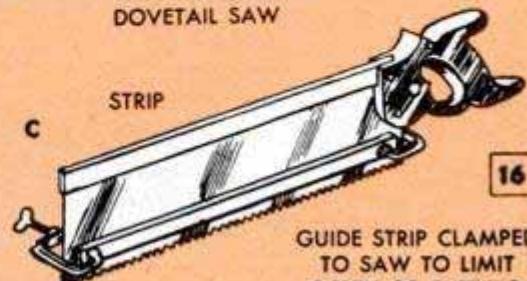
BACKSAW

B



DOVETAIL SAW

C



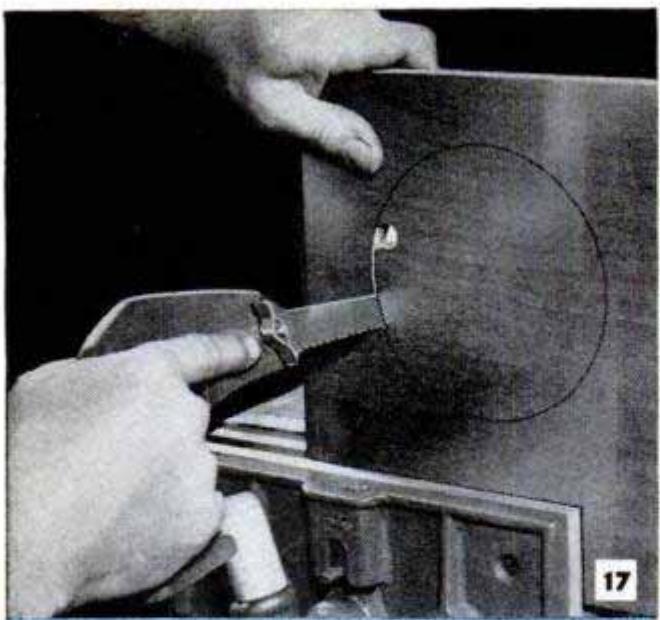
16

GUIDE STRIP CLAMPED  
TO SAW TO LIMIT  
DEPTH OF CUTTING

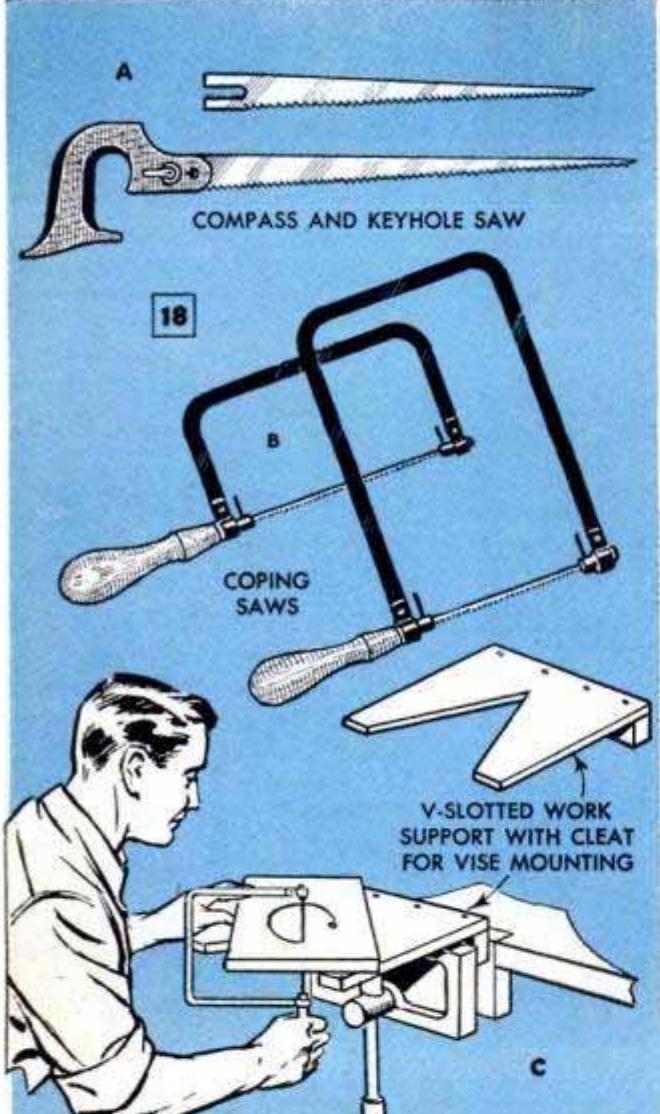
light pressure on the forward strokes only.

**Sawing technique:** Always start forward strokes slowly and increase the speed gradually. This minimizes the possibility of kinking if the blade should bind in the kerf. Kinks ruin blades for accurate cutting. When a saw drifts away from the marked line, apply a slight twist on the handle to bring it back, as in Fig. 10; don't twist the blade forcibly, as this may kink it. A saw that has a constant tendency to run off toward one side is not filed or set correctly, or the blade may be bent out of true. If the saw tends to cut at a slight angle, the blade is not being held perpendicular to the work surface. Bend the blade back to position gradually.

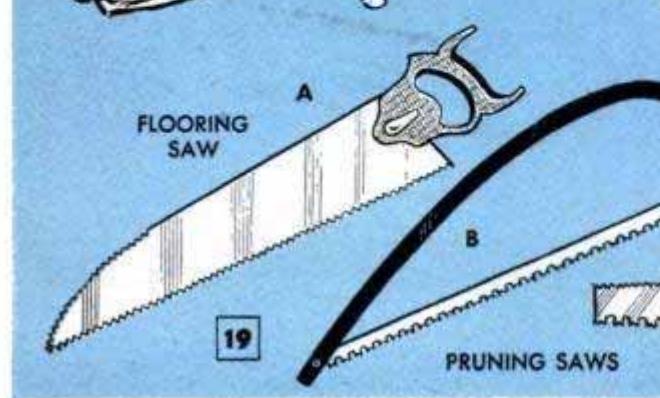
Vibration of the saw blade on upstrokes usually indicates that it is being held at too steep an angle with the work. When the stock pinches the blade, sawing becomes difficult and kinking may result. When crosscutting, you may be able to open the kerf slightly by exerting pressure on the waste portion with your hand. Or you can use a wedge above the saw position, Fig. 11, which also is used to spread the kerf when ripsawing. Sometimes binding occurs when crosscutting between two supports and can be corrected by moving



17



18



19

one of them closer to the sawing position.

Saw through knots slowly and carefully to avoid loosening them. When nearing the end of a cut, reduce the sawing speed and use short, delicate strokes while holding the free end of the stock with your left hand, Fig. 13. This prevents the end from breaking off and splintering a portion of the wood. Don't use a saw to pry off short waste ends, Fig. 12, or to break apart two pieces being ripped. In sawing old lumber, examine the stock and extract all nails in the path of sawing. If a broken-off nail is contacted, use a "nail" saw to cut through it—one having the same or greater width of set than the saw being used.

**Sawing large panels:** When sawing large panels of plywood, wallboard, insulation or plasterboard, you can make a straight cut with little fraying of the fibers on the back side by using two wooden guides and a backing piece, Fig. 15. Set the panel vertically. The guide pieces are spaced the width of the saw teeth and are clamped to the backing piece. You saw through the latter. For plasterboard, use an old saw or a plasterer's saw.

**Accurate angle sawing:** For cutting angles accurately, it's best to use a miter box, Fig. 14. To make a miter box of average size, use 2-in. stock for the bottom and 1-in. stock for the sides. The front should extend below the bottom to hook against the bench top. It also can be clamped in a vise. If used often, a miter box should be clamped or screwed to the bench. Mark the angles to be cut in the sides with the aid of a combination square. A regular cross-cut saw can be used in a miter box for most rough work, but for fine, accurate work use a backsaw or dovetail saw. The slots in the miter box should be cut with the saw which is to be used in it. The work is first marked, then held firmly in the miter box against the back and bottom, positioned so the cut will be made along the line. Raise the handle end of the saw slightly and draw the saw back to start the kerf. Then saw horizontally until the cut is finished.

**Saws for accurate work:** For extreme accuracy in cutting moldings, picture fram-

ing and other light stock, and for forming close-fitting joints, recesses, etc., use a backsaw or a dovetail saw. Backsaws, Fig. 16-A, come in lengths from 10 to 16 in., and have 12 or 13 points per inch. Dovetail saws, detail B, are small versions of backsaws; come in 6 to 12 in. lengths with 15 to 17 points per inch. A miter saw is similar to a backsaw but is 20 to 26 in. long, with 11 points per inch. On all three types, the blade is stiffened by a steel rib along the back. For accurate work the guide line on the stock should be cut with a knife; a pencil line is too thick. When sawing to a predetermined depth, clamp a guide strip on the blade, detail C.

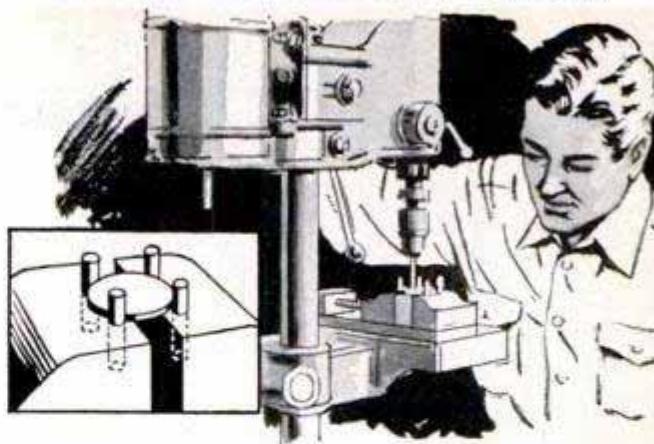
**Curved and internal cuts:** For rough cutting of curves and internal cutouts, use a compass or keyhole saw, Figs. 17 and 18-A. A compass saw has a 10 to 16-in. blade, 8 to 10 points per inch and the teeth have a wide set. A keyhole saw is similar but smaller. The narrow blades of these saws permit turning in a small radius. Short strokes are best and the blades must not be bent. Twist the handle slightly to control cutting direction. For internal cuts, first bore a hole to admit the tip of the saw. In rough cutting, saw a little farther from the line to allow the wood to be dressed smoothly to the line with a file or spoke-shave. The work usually is held in a vise.

For finer and more intricate work involving very small radii, use a coping saw, Fig. 18-B. The throat clearance of the coping-saw frame may vary from 6 to 12 in. The thin narrow blades can be inserted so that cutting is done on either the pushing or pulling stroke, the latter being less likely to kink or break the blade. A horizontal support having a V-shaped cutout, detail C, permits the work to be moved in any direction while sawing.

**Special-purpose saws:** Handsaws for cutting sheet metal have fine teeth milled straight across and tempered for filing action. A flooring saw, Fig. 19-A, has teeth on both edges. Such a saw eliminates boring holes to admit the blade when cutting into a flat surface that cannot be sawed from an exposed edge. Pruning saws, details B, C and D, may have straight or curved blades with teeth on one or both edges.

**Saw care:** Keep your saw sharp; it will be easier to use and will cut more accurately. Some home craftsmen prefer to do their own saw sharpening but the work is very exacting and the average homeowner will find it best to have sharpening done by an expert. Sap and other gummy substances that adhere to saw blades can be removed with a rag dipped in benzine. Prevent rust by keeping the blade coated with oil when not in use. ★★★

## Vise Holds Thin Stock for Drilling



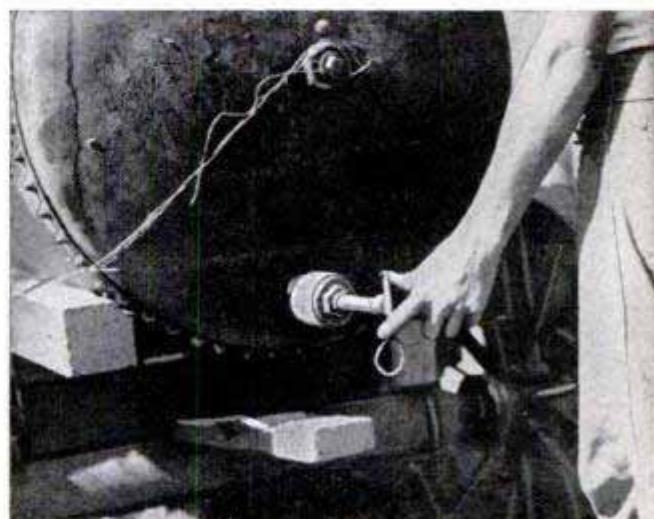
Clamping small-diameter disks and other thin, flat parts in a drill-press vise is no longer a problem if each vise jaw has been fitted with a pair of dowel pins which project above the jaws to engage the work. Use  $\frac{1}{4}$  x 1-in. dowels, drilling the vise jaws for a sliding fit so that the pins may be removed easily. Allow the pins to extend about  $\frac{1}{2}$  in. above the jaws. If desired, a line of three or four holes can be drilled in the top of each jaw so the pins can be moved to hold work of various sizes and irregular shapes without the jaws being opened so far that they do not provide adequate support for the work.

Victor H. Tauferner, Hawthorne, Calif.

## Boiler on Wheels Carries Water To Turkey Flock in Field

Mounted on the running gear of a wagon, this boiler is used by one farmer to supply water to his turkeys. In the field it is connected to a system of rubber hoses to feed water into a number of troughs from which the flock of several thousand birds water. The outlet pipe of the tank is fitted with reducers and a short pipe or nipple which fits into the hose line. To close the outlet pipe a screw cap with a bar welded across it for leverage is threaded onto the nipple.

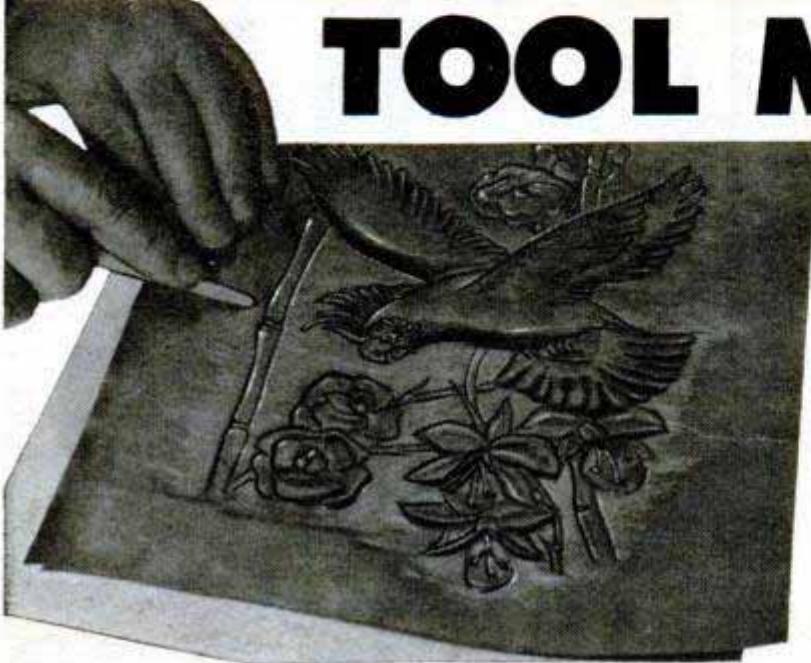
James Roth, Wayland, Iowa.





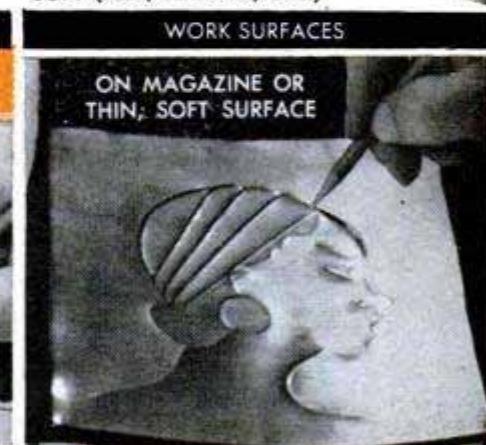
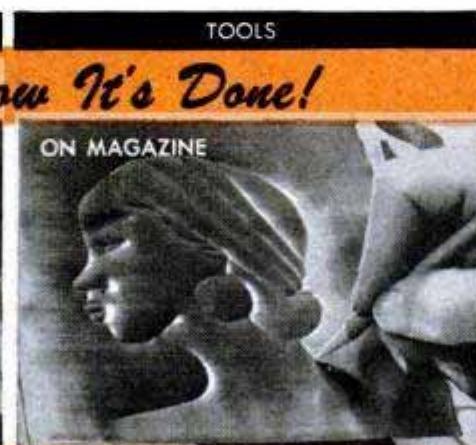
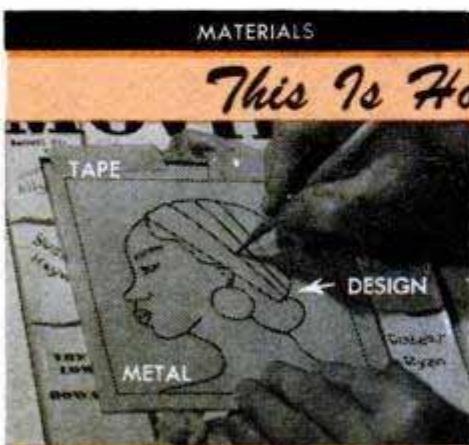
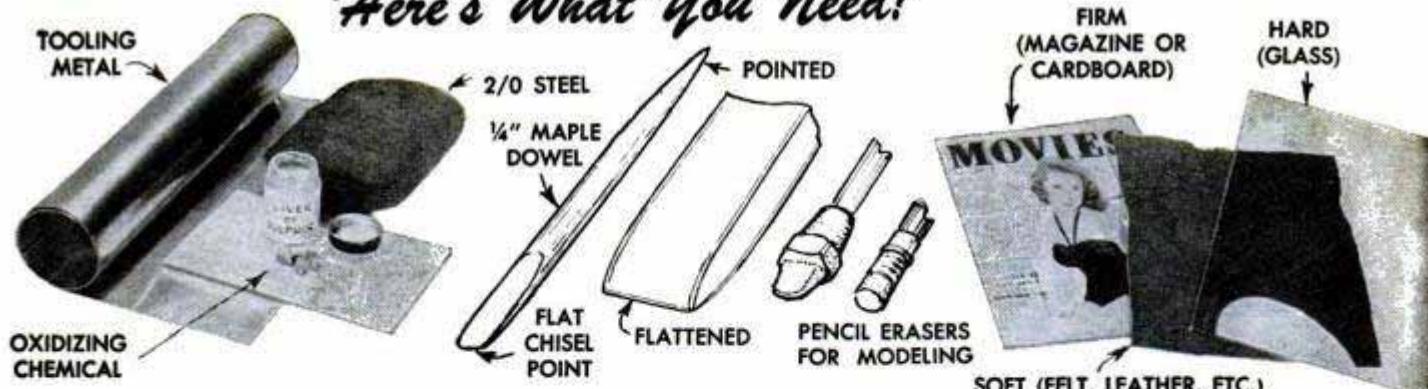
# *It's Fun to* **TOOL METAL**

**By Sam Brown**

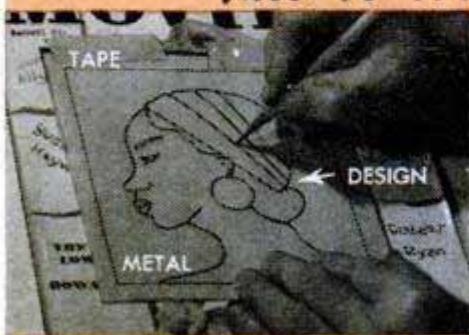


**I**F YOU CAN trace around a design with a pencil, you can tool metal — it's that easy! What's more, if you are the least bit artistic by nature, you'll enjoy this means of producing attractive bas-relief plaques and trays as well as decorative coverings for wastebaskets, jewel and cigarette boxes similar to those illustrated above and on the opposite page. Currently the most

*Here's What You Need!*



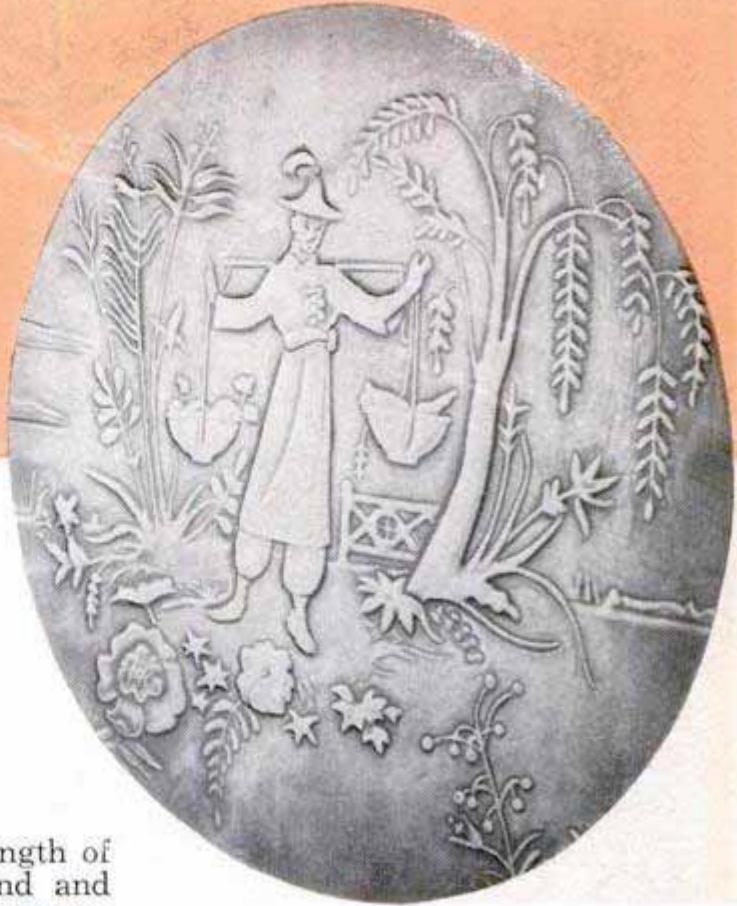
*This Is How It's Done!*



**1** DRAW THE DESIGN, USING 3H PENCIL OR POINTED DOWEL

**2** RETRACE DESIGN WITH POINTED TOOL TO DEEPEN OUTLINE

**3** TURN WORK OVER AND TRACE INSIDE OUTLINE

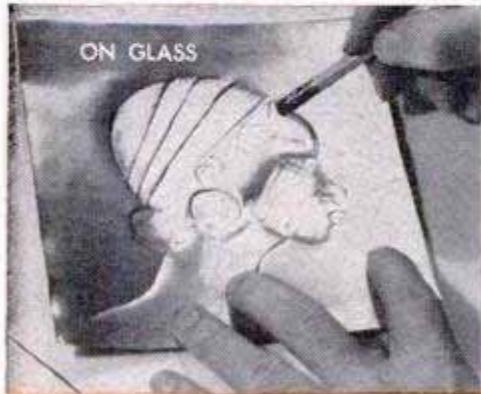
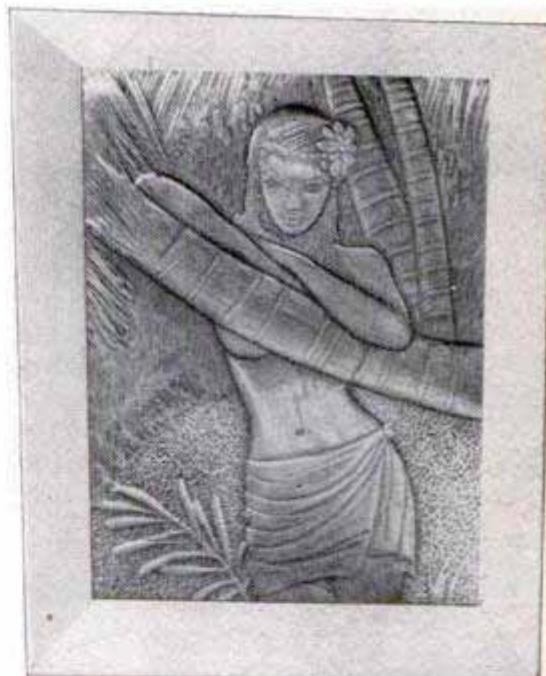


popular of the metal crafts, metal tooling has gained much of its widespread acceptance through offering an end product that can be produced at comparatively low cost without need for special skills.

**Simple tools used:** The designs may be drawn freehand or traced from a drawing or photograph. Of the few simple tools needed, the basic one is a short length of  $\frac{1}{4}$ -in. maple dowel flattened at one end and pointed at the other. Also necessary is a narrow block of wood tapered at one end, see page 218. The only other "tools" required for the more simple designs are two pencils, one of which is fitted with a slip-on eraser.

Three kinds of surfaces for supporting the work will be necessary. Felt or rubber can be used for a soft surface, while a magazine or piece of  $\frac{1}{8}$ -in. mounting board will provide a firm surface. The hard surface can be glass, metal or marble.

**Materials needed:** The tooling metal can be either copper, aluminum, bronze or brass. Copper is by far the most suitable, inasmuch as the soft, annealed condition in which it is sold has just the right amount of "give" for easy tooling. Other advantages favoring the use of copper are its golden-orange color and the ease with which it may be oxidized or antiqued. From a mechanical standpoint, aluminum is easiest to tool. Though not antiqued as readily as copper,



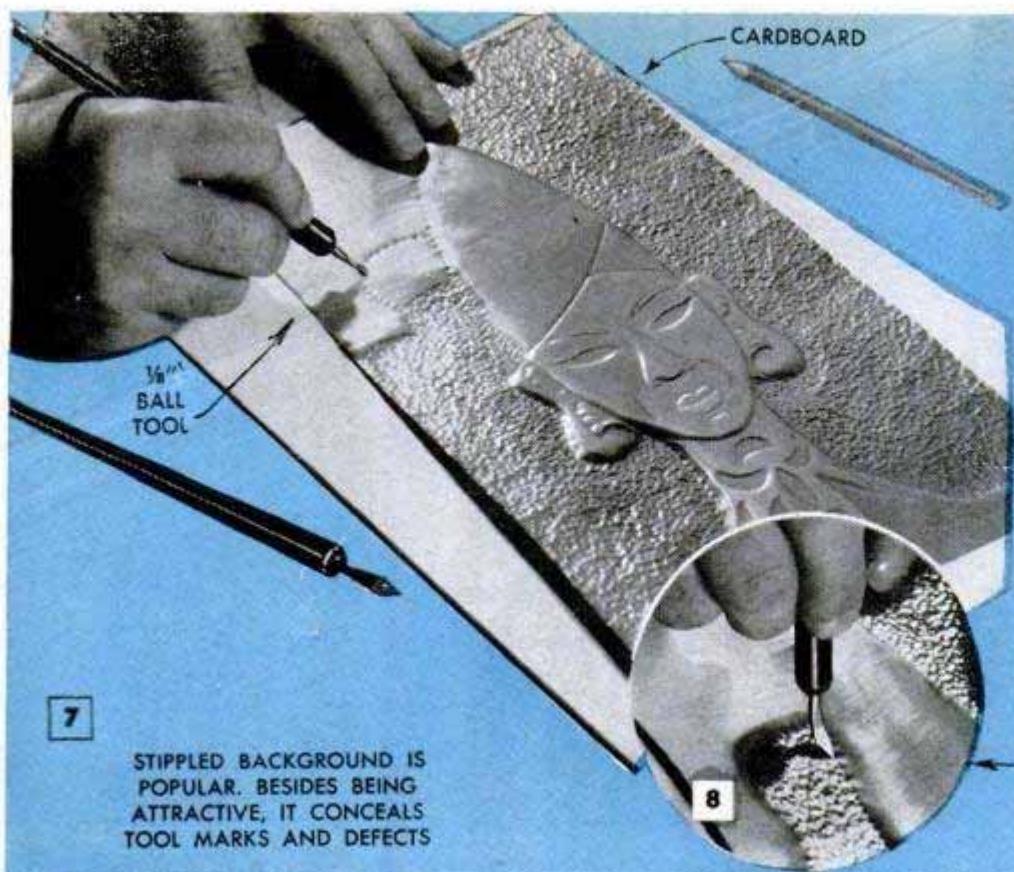
4 WITH WORK ON GLASS, PRESS OUT FROM BACK WITH ERASER



5 TURN WORK FACE UP AND FLATTEN THE BACKGROUND



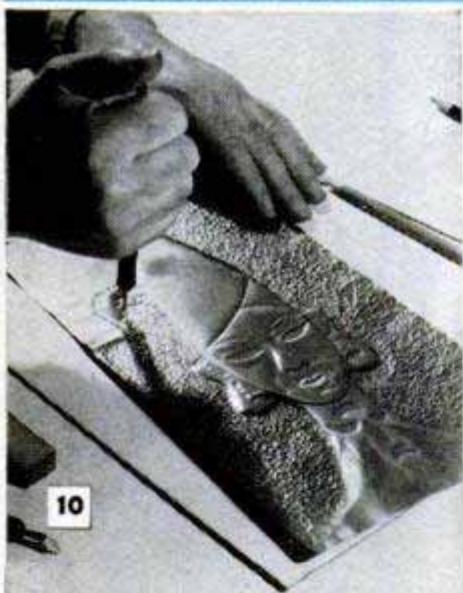
6 POLISH WITH STEEL WOOL AND APPLY CLEAR LACQUER



7 STIPPLED BACKGROUND IS POPULAR. BESIDES BEING ATTRACTIVE, IT CONCEALS TOOL MARKS AND DEFECTS

8

POINTED STEEL TOOL CAN BE USED TO WORK CLOSE



10

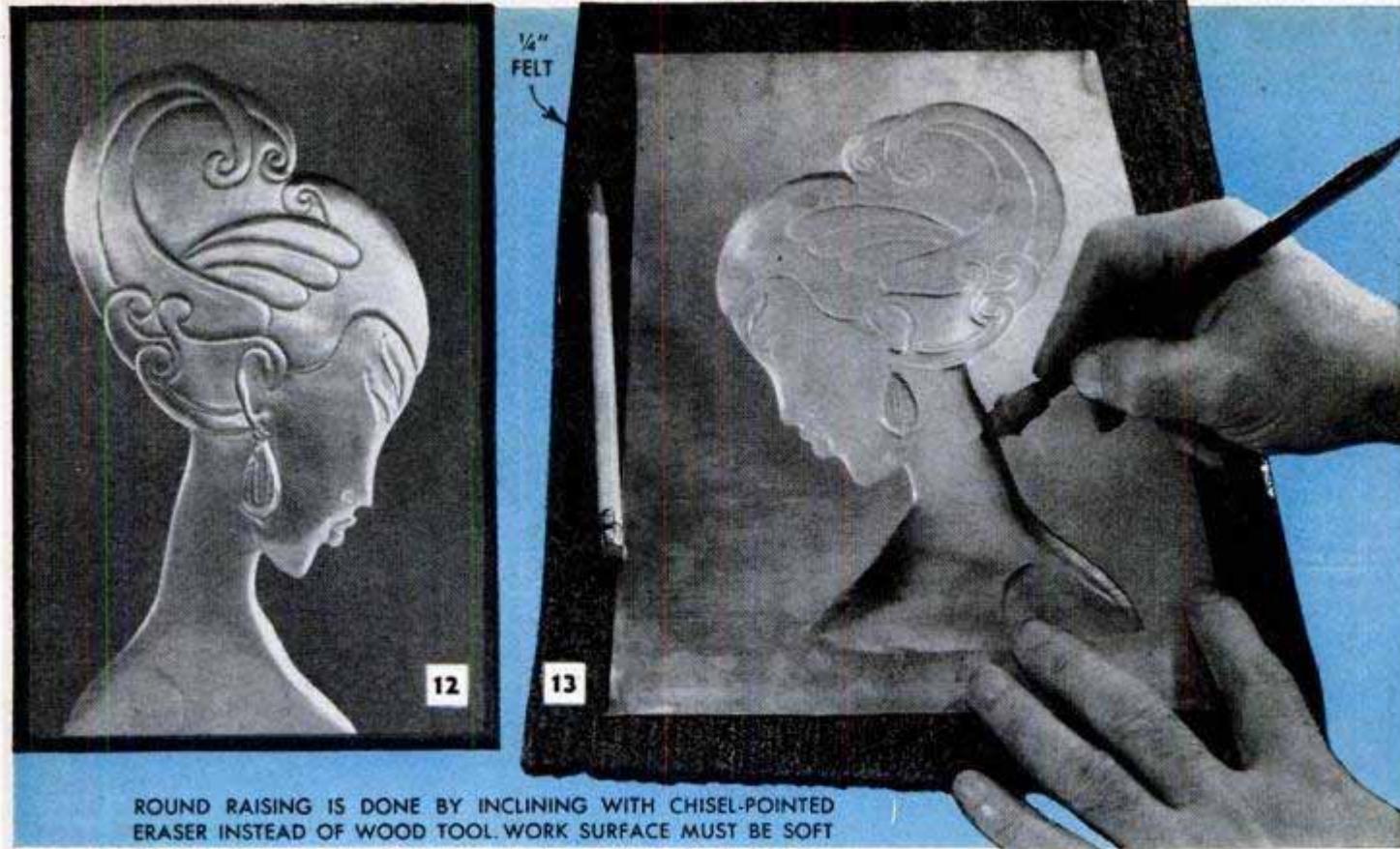
aluminum can be painted with transparent lacquers to produce a variety of beautiful effects. All metals are available in roll form 12 and 18 in. wide, and are polished and ready for tooling. For additional data, see Fig. 11.

**How tooling is done:** Besides hundreds of design patterns that are available, your own can be made from photographs and illustrations. Start by taping the design to the metal and tracing the outline with the dowel or a hard-lead pencil, Fig. 1. The pencil is most suitable because it leaves a light mark on the pattern which indicates how much has been traced. The work is placed on the firm surface for this operation, keeping the convex side of the slightly curved metal up. This is preferable for the face or front of the work. Pressure when tracing should be slightly heavier than when writing. Ease up at the beginning and end of each stroke to avoid making undesirable dots in the metal. After

11

## Quick Data on Metals for Tooling

Metal	Best Weight	Tooling Pressure	Chemical Coloring	Remarks
COPPER	35 OR 36 GA.	TOOLS EASILY WITH MEDIUM PRESSURE	BLACK AND BROWN SHADES ARE OBTAINED WITH LIVER OF SULPHUR IN WATER SOLUTION	BEST ALL-AROUND METAL FOR TOOLING. WORKS EASILY WITH WOOD TOOLS. POLISHES NICELY WITH 2/0 OR 3/0 STEEL WOOL. PRICE ABOUT 50c SQ. FT. (1952).
ALUMINUM	34 OR 35 GA.	VERY SOFT; EASY TO TOOL	NO SIMPLE METHOD OF COLORING; IS ATTRACTIVE PAINTED WITH TRANSPARENT LACQUERS	THE EASIEST METAL TO TOOL—IS ACTUALLY TOO SOFT FOR FINE DETAIL, HENCE THE HEAVIER WEIGHT RECOMMENDATION. EXCELLENT FOR DEEP RAISING. PRICE ABOUT 25c SQ. FT.
BRONZE	35 OR 36 GA.	ALMOST AS SOFT AS ALUMINUM; EASY TO TOOL	NO SIMPLE METHOD OF COLORING; CAN BE BLACKENED BY HEATING	TOOLS EASILY; A BIT SOFT FOR FINE DETAIL BUT EXCELLENT FOR CONTOUR WORK. BRIGHT GOLD COLOR POLISHES NICELY. IDEAL FOR HEADS. PRICE ABOUT SAME AS COPPER.
BRASS	36 GA.	FAIRLY HARD; REQUIRES FIRM PRESSURE	VARIOUS SHADeS OF BLACK ARE OBTAINED WITH COPPER-SULPHATE SOLUTION	MUST BE DEAD SOFT; NOT A BEGINNER'S METAL SINCE IT DOES NOT YIELD READILY TO TOOLING PRESSURE. EXCELLENT FOR FINE DETAIL. GOOD FOR ORIENTAL MOTIF. SAME PRICE AS COPPER.



ROUND RAISING IS DONE BY INCLINING WITH CHISEL-POINTED ERASER INSTEAD OF WOOD TOOL. WORK SURFACE MUST BE SOFT

tracing the design, remove the pattern and go over the work once again to deepen the lines, Fig. 2.

Next, turn the work over and trace a line just inside the raised outline, Fig. 3. This operation also is done on the firm surface. After you have gained more experience, this operation may be done on leather or thin rubber to permit deeper impressions, the one disadvantage being a slight increase in distortion around the edges of the design. The "in" line should be made with the tool held at an angle over the outline, with the latter serving as a guide. In determining which side of the outline should be inlined, always keep in mind that you inline on the side that is to be raised.

Now place the work face down on the hard surface and flatten all large areas with the pencil eraser, Fig. 4, rubbing the work out with light, even strokes. Then turn the work face up and flatten the background areas with the large flattening tool, Fig. 5. Use the flat end of the dowel for areas adjacent to the lines. Make all strokes in the same direction to flatten the metal without undue buckling. The strokes should be made with the "grain" which, in tooling metal, consists of fine, parallel lines on the surface. When the entire design has been pressed out, polish it with 2/0 or 3/0 steel wool and brush or spray with clear lacquer, Fig. 6.

**Backgrounds:** One of the most common troubles when tooling are the marks usually left on plain backgrounds. A simple

remedy for this is the textured background, Fig. 9. Of the many which may be produced easily, the plain stipple is one of the most attractive. On average work this is done with a  $\frac{1}{8}$ -in. ball tool, or an escutcheon or clinch nail driven in the end of a dowel can be used. First dot in a circular area about 1 in. in diameter, Fig. 7, and then use a pounding stroke, Fig. 10, to stipple inside this area, repeating the operation until the entire background is completed. For working close to the design, any kind of pointed tool may be used, Fig. 8, but it must be used with care to keep the metal inside the line free of distortion.

Parallel lines provide an excellent background and also help level buckled metal. Stippled lines can be used to depict clouds. Crisscross lines, Figs. 23 and 24, provide an attractive background and are made with the point of the dowel guided along a straightedge. Painted backgrounds, usually painted black, are the simplest of all, Fig. 12.

**Round raising:** After doing work in the basic flat-raising technique, you undoubtedly will want to try round raising, Fig. 12. The only difference between the two is that instead of inlining with the dowel point, the design is raised with pencil erasers when round raising, Fig. 13. The work is placed on a soft surface and a round eraser used to raise all large areas inside the design. Use light, fast strokes but avoid excessive pressure which might leave ridges in the metal. This technique is ideal for heads and other designs having large open



## Oxidized

OXIDIZED WORK IS HIGH LIGHTED WITH 2/0 STEEL  
WOOL OR F-GRIT SILICON-CARBIDE ABRASIVE WITH WATER

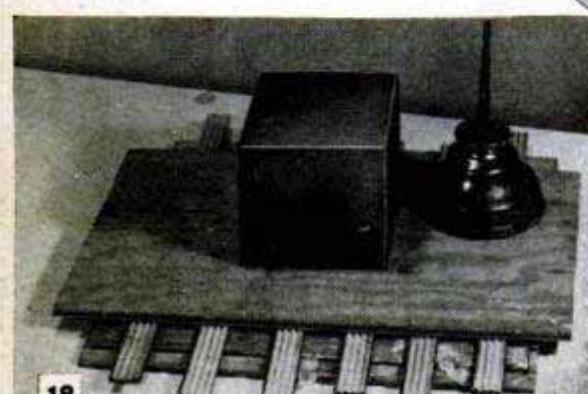
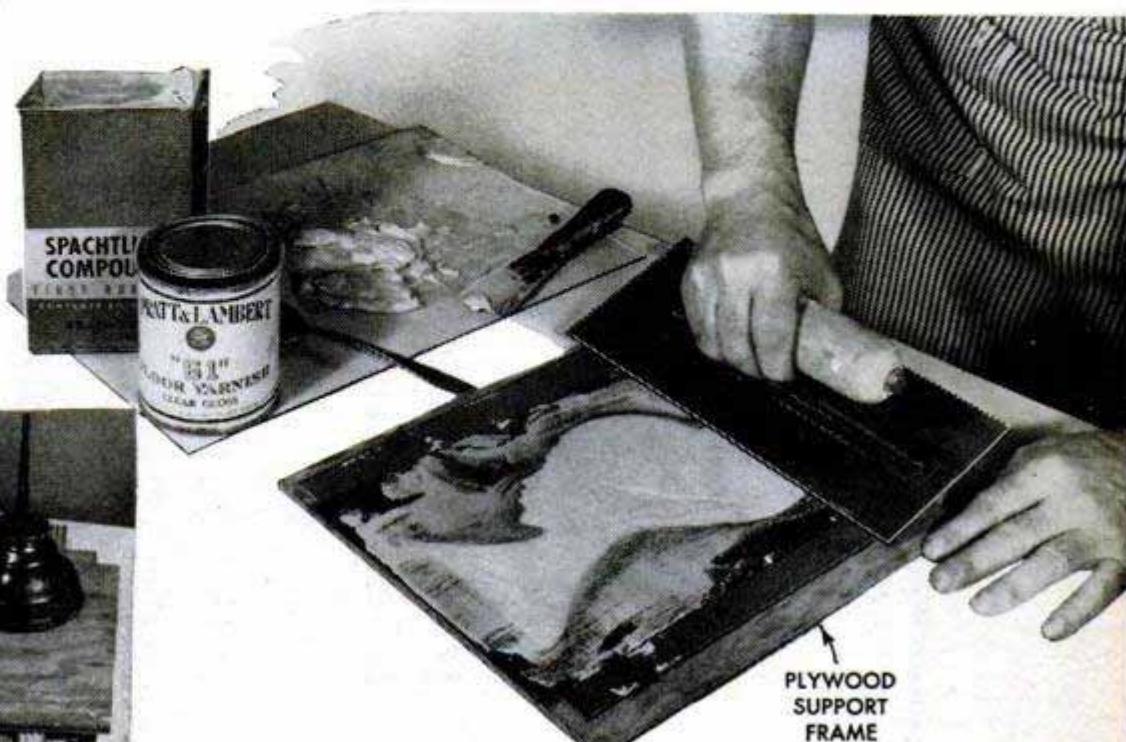


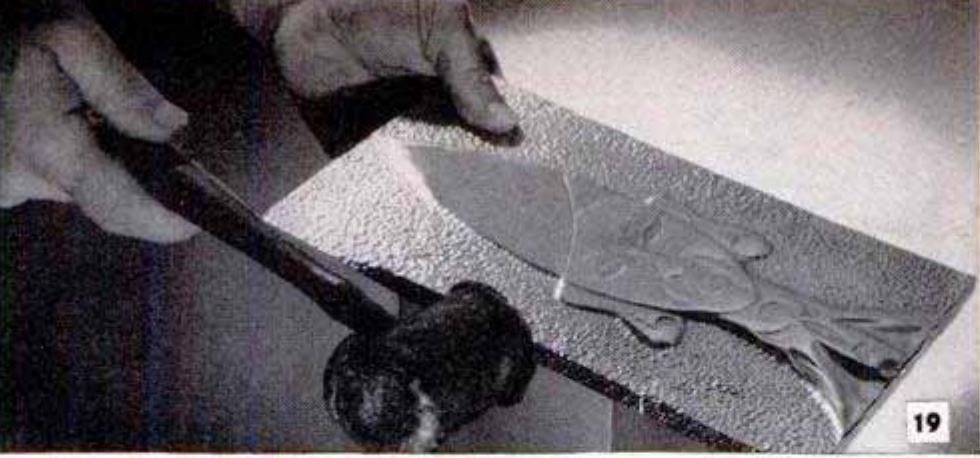
## High Lighted

Right, spachtling compound, to which varnish has been added for flexibility, is troweled into depressions on back of work to prevent crushing. Plywood frame having design cut out of center supports work during operation. A damp cloth is used afterward to clean metal around the design

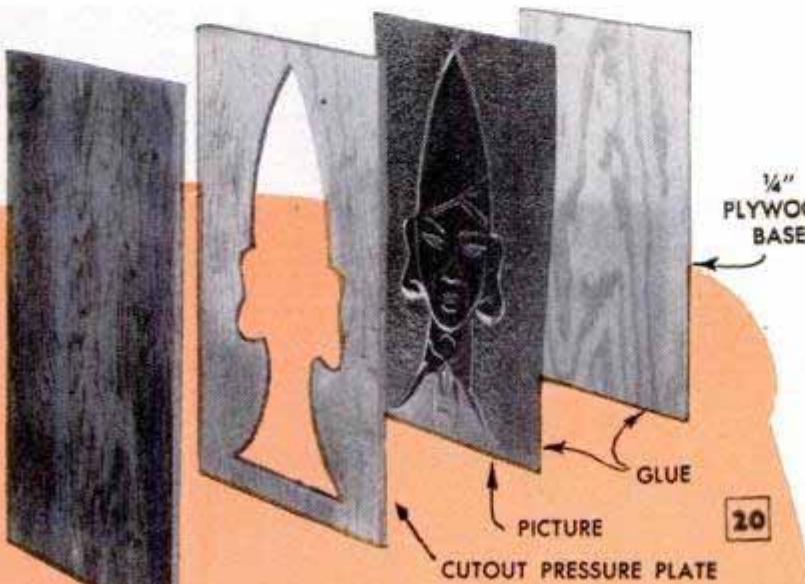
areas of varying depths. The two techniques very often are combined, since most designs will have one or more large areas for which round raising is more suitable, together with details requiring the clear definition possible only with flat raising.

**Oxidizing:** If the work is to be oxidized which, along with antiquing, is done to make various lines stand out in greater relief, copper should be used because it is the easiest and most economical of the metals to treat. All you need is an ounce of liver of sulphur to supply you for several jobs. After dissolving a couple of pea-size lumps in a glass of water, use a wad of steel wool to swab the work with the solution. The metal will begin to darken almost immediately and eventually turn black, Fig. 15. When the metal is the shade desired, rinse under running water to stop the action, then allow the work to dry naturally—do not wipe. When the work is dry, rub it with steel wool to high light, Figs. 14 and 16. If this seems too mild, use F or FF-grit silicon-carbide grains with water and





19

1/4"  
PLYWOOD  
BASE

20

TOOLED PICTURES CAN BE FRAMED OR  
APPLIED IN VARIOUS WAYS TO CRAFT PROJECTS

rub with steel wool. For best results, oxidize the copper to a deep brown rather than black, controlling the intensity by the strength of the solution. It's a good idea to experiment a bit before doing any actual work.

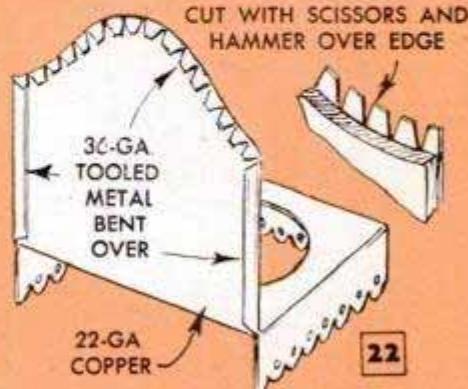
**Backing:** All large, deeply formed work should be backed to prevent possible crushing. The backing can either be wax, which is flowed on hot, or plaster which is troweled into the depressions, Fig. 17. Plaster or spackling compound, to which varnish, 1 teaspoon per cup, has been added for flexibility, is preferable for this purpose. Mix the plaster with your fingers until there are no lumps left which might make a mark when drawn across the work. The work should be supported closely on wooden blocks or a fairly accurate cutout of the design. After leveling it with a trowel or wooden straightedge, use a wet cloth to clean the metal around the design. Hold the work flat for drying by using oiled sticks under a weight, Fig. 18.

**Mounting:** Properly done, the work can be laid flat for framing as easily as a design on paper. For simple outlines such as heads, a plywood cutout may be used, Fig. 20, for pressing solidly against the background when gluing the work to a plywood backing. This type of backing may be trimmed by sawing or the edges can be bent over, Fig. 19. If used for a tray, Fig. 24, the work should be placed under glass to withstand wear better. When used for a decorative covering, the light metal is bent easily over heavier metal objects, Figs. 21 and 22, or nailed to wooden objects as in Fig. 23.

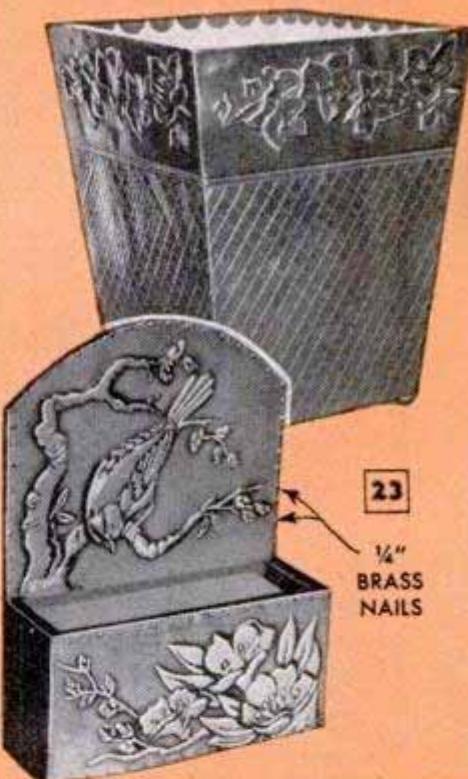
★ ★ ★



21



22

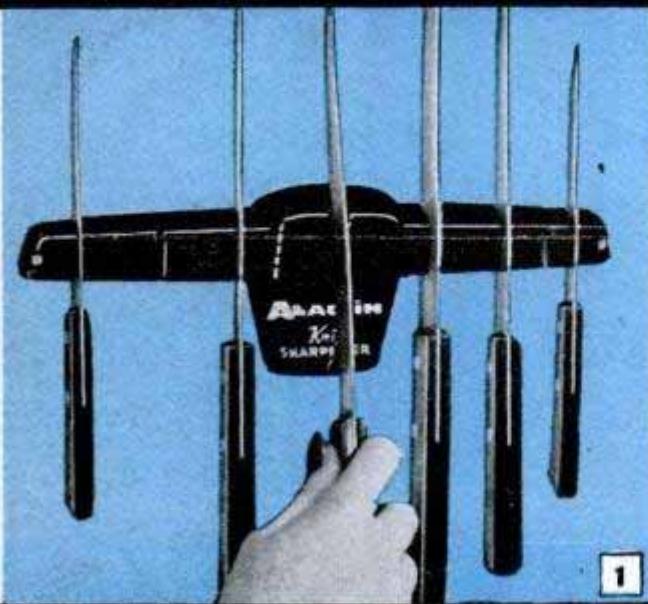


23

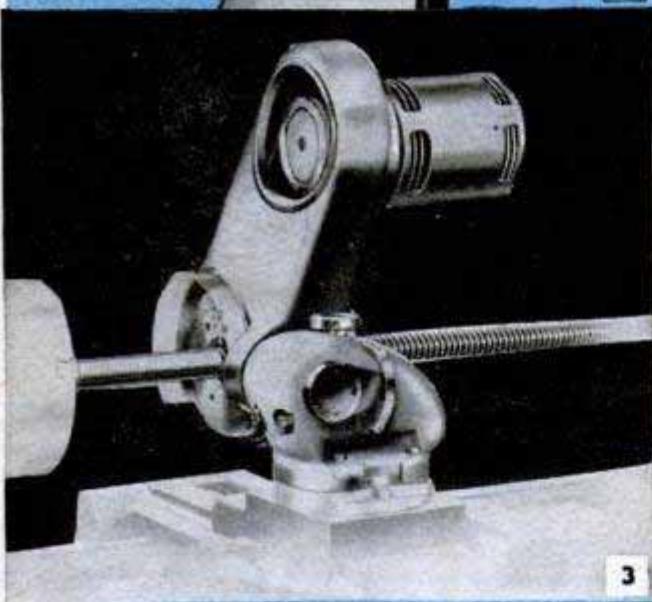


24

# SHOPPING FOR TOOLS



1



3



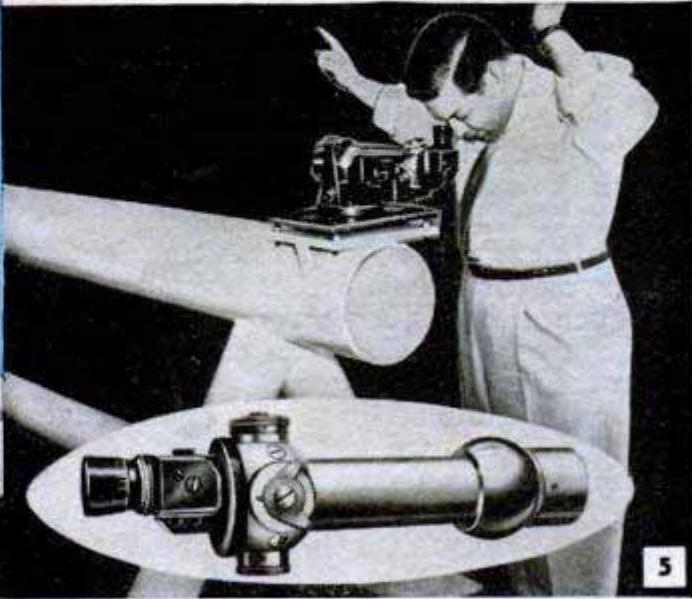
2

1. **KNIFE RACK** features a built-in sharpener and a vacuum "pad" on the back which holds securely on wood or tile walls. Knives are held in special blade-gripping slots cut in the body of the holder. Slots hold blades of various sizes securely without dulling edges

2. **PORTABLE VAPOR-TYPE DEGREASER** is designed to use the latest type of nonflammable chlorinated solvent. Unit is entirely self-contained and comes equipped with automatic mercury control switch and manual starting switch for operation on 110 or 220-volt current. Solvent container is insulated to prevent heat loss. Oil, grease, pitch and other foreign matter are removed from auto and machine parts, lens-grinding tools and instruments in a matter of seconds, leaving no discoloration or film. Metal parts, or containers filled with small parts, up to 21 in. in diameter can be lowered into the unit at one time



4



5

**3. LATHE ATTACHMENT** cuts square, buttressed, vee and rounded threads, also worms, in less than half time required by conventional methods. Cutting is done by a tool similar to a round die, which moves around the work eccentrically, cutting thread in a continuous operation. Eliminates pitch inaccuracies

**4. CHECK PROTECTOR** perforates checks in one stroke from left to right, eliminating any possibility of tampering or raising. Does not affect the legibility of the writing. To use, grasp the check in the left hand as pictured, open the protector and place at the left-hand margin. Then move to the right as shown

**5. ALIGNING SCOPE** brings new accuracy to machine tooling and assembly of intricate parts. Optical elements in the scope establish basic lines of sight between the ends of objects to be aligned. An optical micrometer displaces the line of sight either vertically or horizontally to indicate misalignment

**6. HOMEOWNER'S TOOL KIT** includes essential hand tools for nearly every type of home-repair job that does not require the use of special power equipment. All tools are stored in an attractive metal toolbox with a four-compartment tray which provides for storage of smaller items where they are always at hand

**7. SINK-BORING TOOL** is available for installation of electric garbage-disposal units in existing sinks. Tool consists of a carbide-tipped scribe or circle cutter and a boring head that enlarges the drain opening in cast-iron sinks to the required size. Both scribe and boring head are driven by  $\frac{1}{2}$ -in. drill

**8. HEAVY-DUTY IGNITION COIL** for cars and trucks produces hot spark on no more than two-volt input. Gives longer life to contact points in distributor and requires no special condenser. Primary and secondary windings are placed side by side on the core, giving precise operating balance over a wide range of speeds

**9. DOWELING JIG** has a rotating indexing head, or guide, which can be positioned for center, off-center, or angle drilling of dowel holes in stock from  $\frac{3}{8}$  to 4 in. thick. Frame of the jig adjusts to any thickness of wood within these limits and locks securely in place. Guide locks in any of four positions



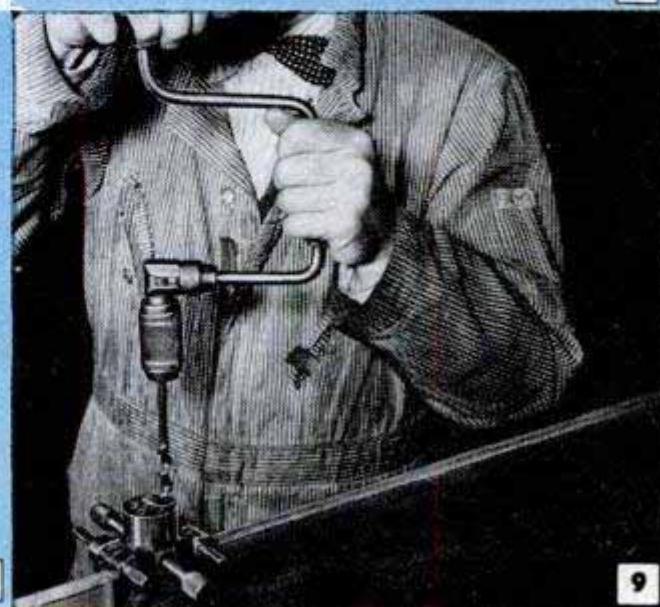
6



7



8



9

## Chisel Used to Chip High Spots When Truing Grindstone

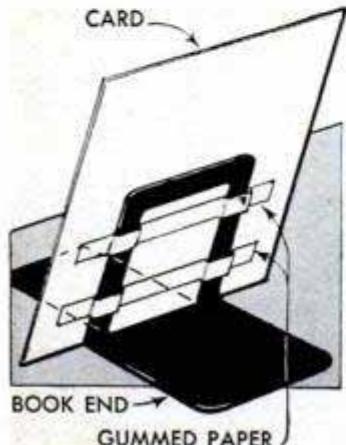


Water used on a grindstone eventually causes any soft spots to wear more rapidly than the rest of the stone, producing an uneven grinding surface that is no longer useful for most practical purposes. One way of truing the stone is by holding a file against it as shown to mark the high places, after which a cold chisel is used to chip them away. Following this, the file is used again to smooth any irregularities in the stone.—Ervin L. Strayhorn, Beebe, Okla.

## Oil Drum Used as Stump Burner

An oil drum with both ends removed can be used to burn dead tree stumps. Place the drum over the stump, fill it with dry grass, wood shavings and similar rubbish and ignite. Feed more fuel into the drum from time to time. In 48 hours the stump should be sufficiently burned to allow easy removal with an ax and spade. If the drum rests too flat on the ground to allow sufficient draft for the fire, holes may be cut in the side near the bottom.

## Book Ends Replace Easel Backs Of Merchandise-Display Cards

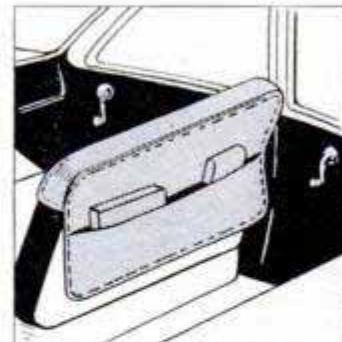


When the easel back of a counter display card becomes bent or broken so it will no longer support the card, remove the easel and attach the card to a metal book end with strips of gummed paper. If a display card supports merchandise, the book

end should be substituted for the easel before the card is put out on the counter, as such cards tend to warp and fall from the counter after a short time.

## Auto-Seat Pocket Holds Catalogues

To keep catalogues and order books handy for easy selection, one salesman uses a pocket like the one shown in the illustration. Made of canvas, it slips over the back of the front seat and can be removed easily when the car is to be used for personal service. The pocket may be partitioned if desired.



## Thin Cutoff Tool for Metal Lathe

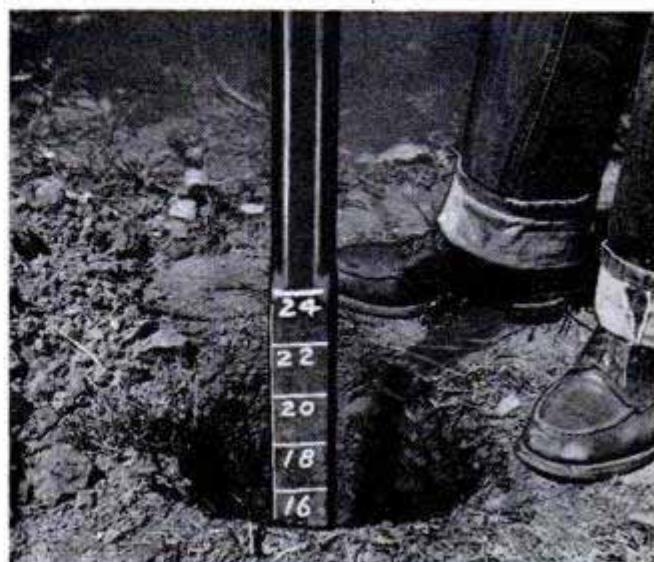
For delicate cutoff work or for cutting narrow grooves with a metal-turning lathe, a discarded hacksaw blade serves as an excellent cutoff tool. As no side clearances are needed, the end of the blade is ground to the same bevel as the original cutoff-tool bit. The blade is clamped in the toolholder together with the original tool bit, but is allowed to extend beyond the cutoff bit slightly more than the depth of the intended cut.

C. H. Wheeler, Eau Claire, Wis.

## Depth Gauge on Posthole Digger

To save time when digging postholes, one farmer marked a scale on the side of his digger to enable him to tell at a glance whether or not the holes are of a uniform depth and extend below the frost line. The scale reads from 16-24 in. with a line marked every 2 in. as shown.

Gary C. Gillum, Lawrence, Kans.



## TV RECORDING SYSTEMS

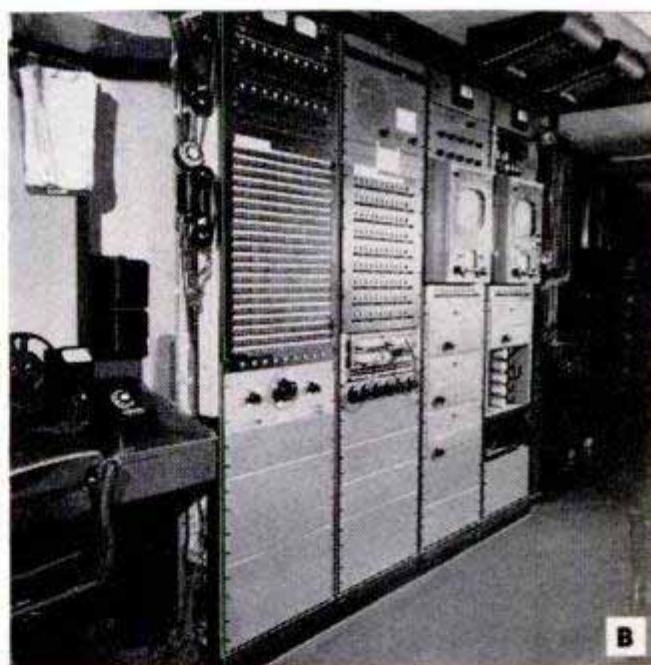
THREE KINESCOPE-recording systems are used in the NBC New York TV studios, all employing 16-mm. film. The kinescope recording (or teletranscription) is a recording made on motion-picture film from the screen of a television monitor. After the recording has been made and developed, this filmed program can then be sent out to other TV stations.

The ordinary kinescope recording can be on one of two systems, the single or double system. In the latter, the negative picture is recorded on one film and the sound track on another. The synchronized positive prints then are made on one film. In the single system, sound and picture are recorded directly on the same positive film. It is possible to reverse the polarity in projecting film on television and, if time is pressing, a negative can be used with electronic reversal.

A third, or quick method, referred to around NBC as the "hot kine," is a single system in which the film is fed directly from the recording camera into a complete processing machine attached to the camera. On a half-hour show, for example, it is possible to put the show back on the air, via hot kine, in about six minutes. Photo A shows engineer Herb De Groot in the kinescope-recording laboratory; the general control panel appears in photo B. The magnetic-tape, sound-recording equipment used in the double system is illustrated in photo C. Three combination kinescope-recording machines are shown in photo D.



A



B



C



D

# SIX-IN-ONE RADIO LAB. PROJECT

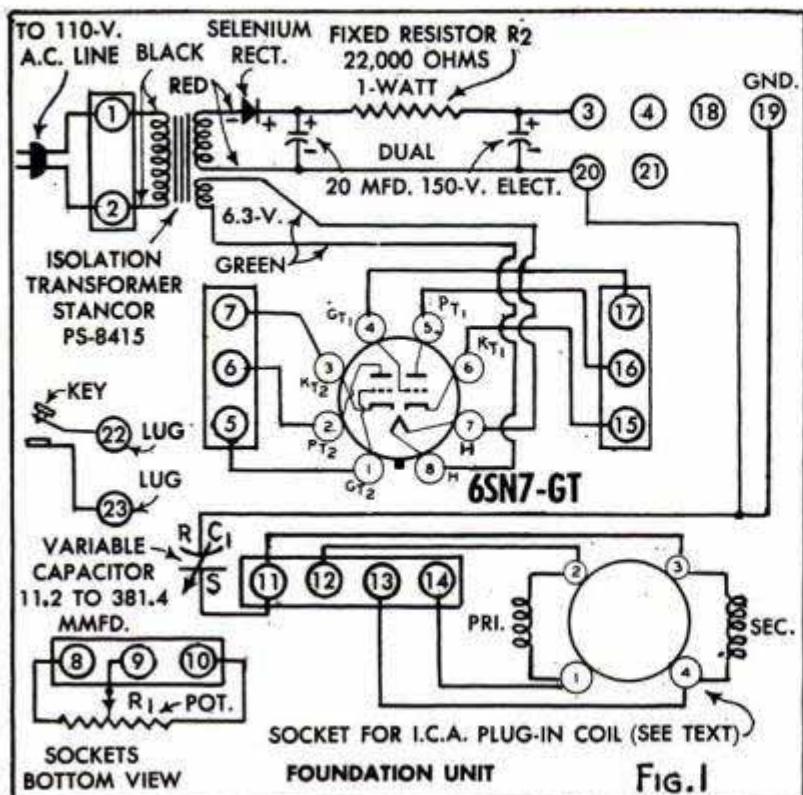
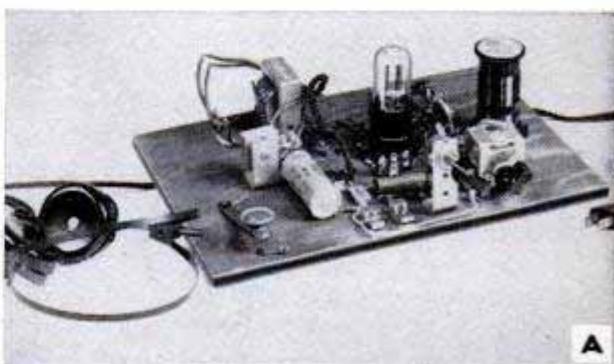


FIG. I

THE BEGINNER cannot obtain a clear understanding of radio without actually building the basic circuits and evaluating their merits. Even the most prominent electronics engineers, in many cases, got their start from building and experimenting with 1-tube circuits. Today the field of electronics has progressed to a point where television, guided



A

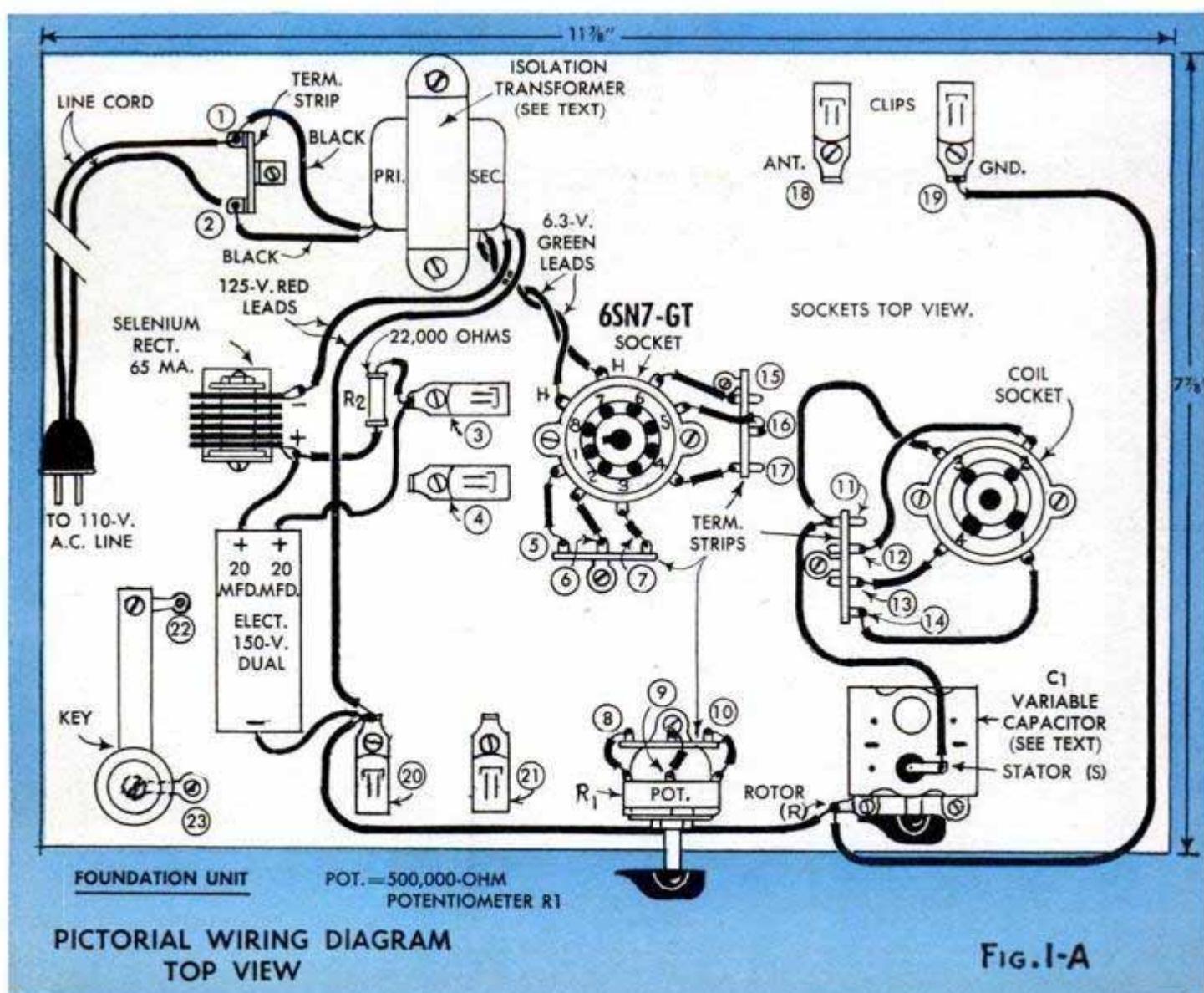


FIG. I-A

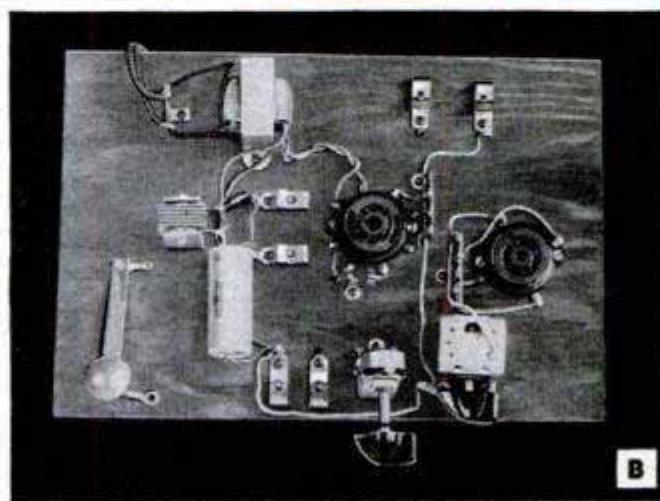
# FOR BEGINNERS

By Stephen Gordon

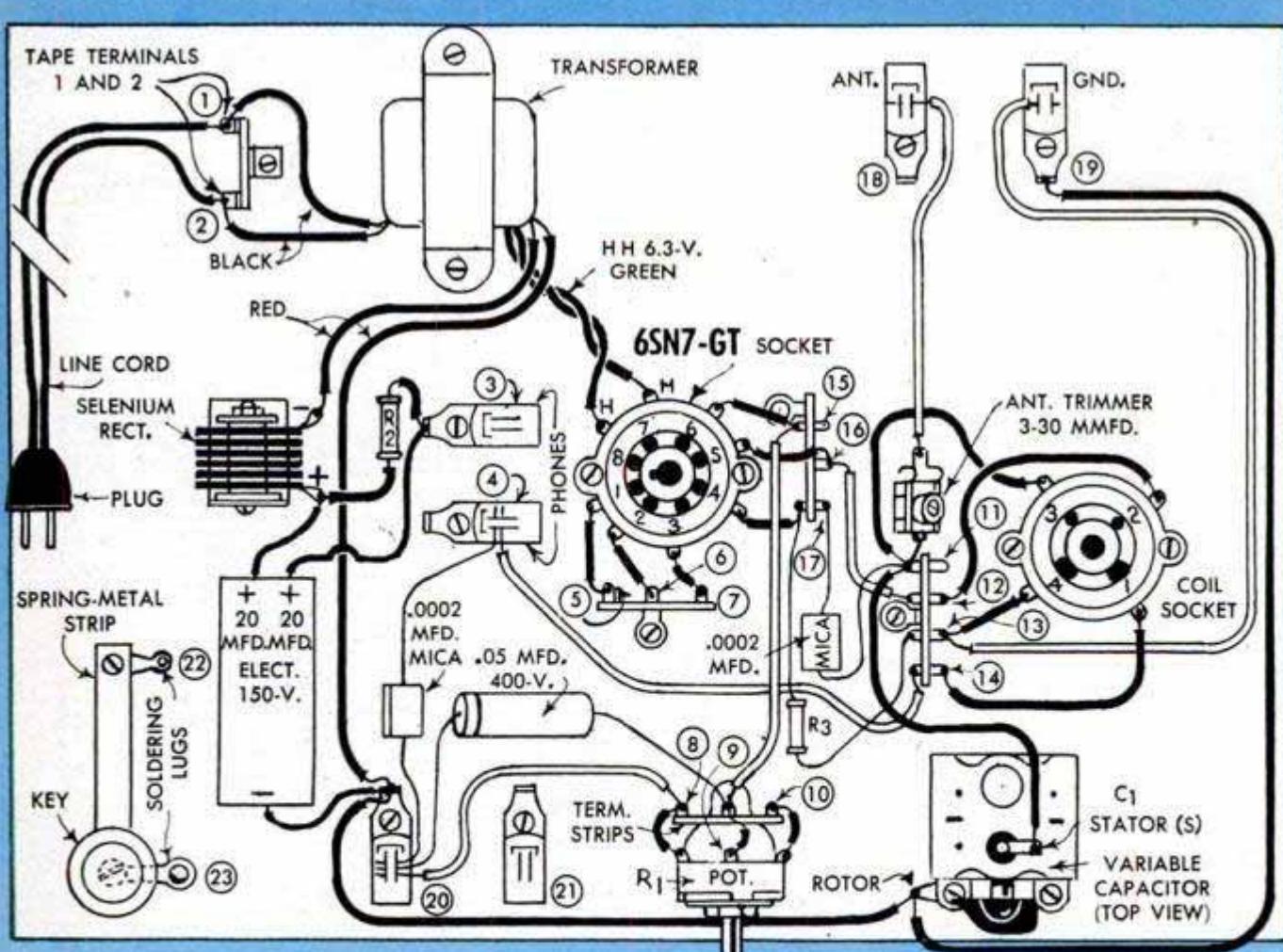
missiles, automatic calculators, etc., have become a part of our everyday language, yet even the most complicated electronic equipment still requires the use of some basic circuits which, though improved, have been in use since the beginning of radio.

This simple radio-laboratory project was designed to permit the construction of several circuits using a small number of inexpensive components to keep the builder's cost to an absolute minimum. The six circuits described here include a diode detector; a diode detector-audio amplifier; a grid-leak detector; a plate detector; a regenerative detector and a code-practice oscillator; all complete operating units.

Space does not permit a discussion of the theory behind the various circuits as this is to be found in elementary radio textbooks. Teachers will find these circuits an excellent supplement to radio and electronics textbooks for classroom purposes.

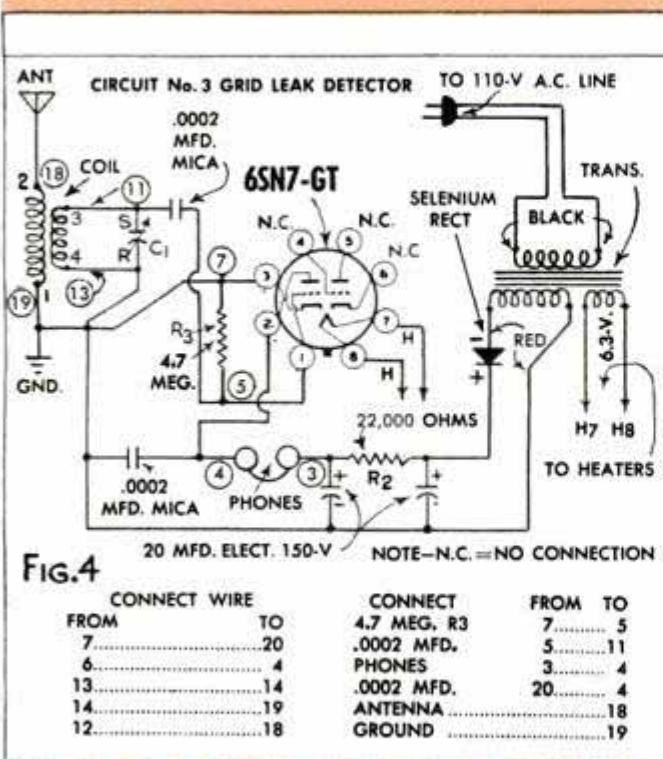
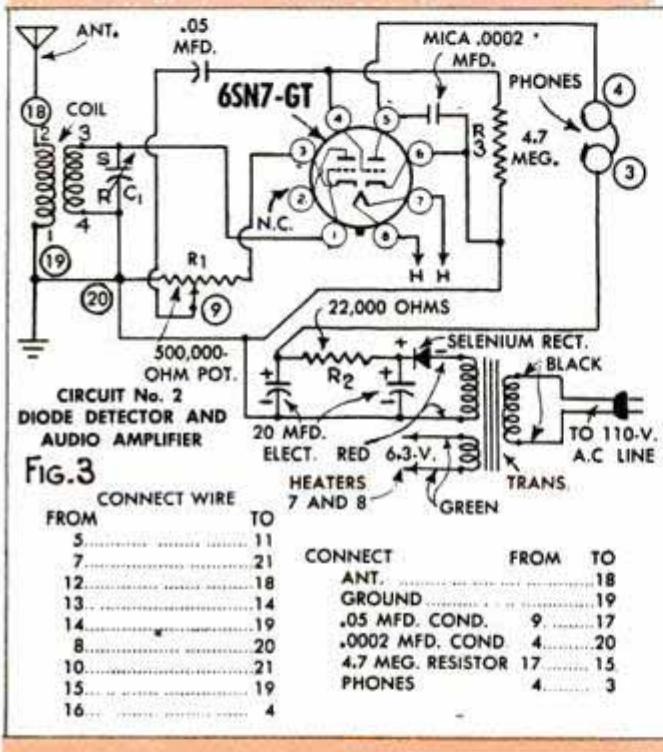
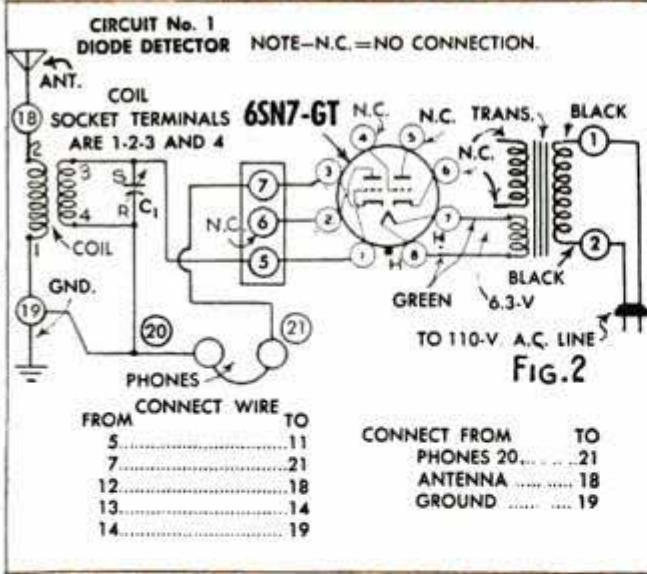


B



COMPLETE CIRCUIT No. 5  
REGENERATIVE DETECTOR  
SEE FIG. 6

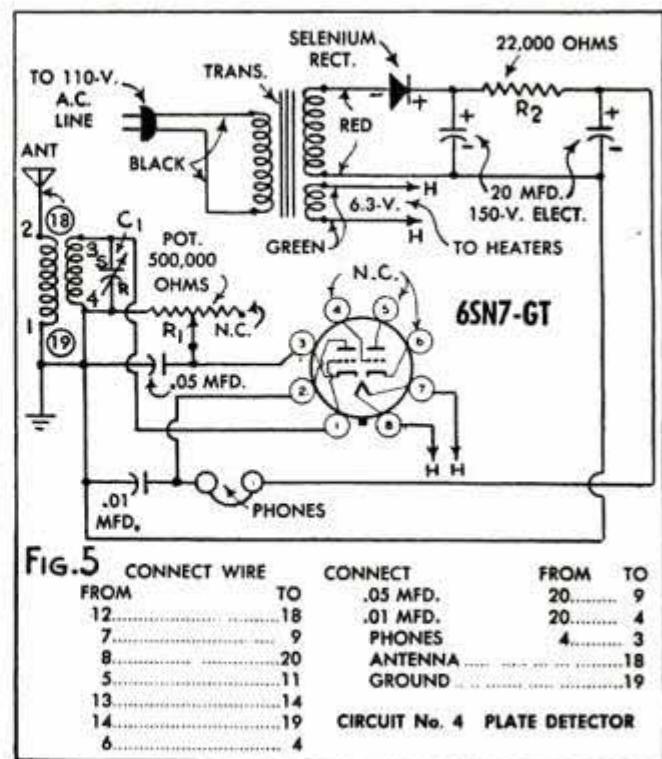
R2 = 22,000 OHMS, 1-WATT  
R3 = 4.7 MEGOHMS, ½-WATT



In order to make the construction of the various circuits simple, the main, or foundation, unit is assembled on a  $\frac{3}{8}$ -in.-plywood board,  $7\frac{1}{8}$  in. wide and  $11\frac{1}{8}$  in. long. All foundation components are mounted above the board to make them easily accessible. Since it will be necessary to solder and unsolder the various parts repeatedly for the construction of the different circuits, three 3-lug, one 4-lug and one 2-lug terminal strips are mounted on the foundation unit as illustrated in the pictorial wiring diagram, Fig. 1-A. Six Fahnestock clips also provide easily changed connections at convenient points. The schematic circuit diagram for the foundation unit appears in Fig. 1. All connecting points on the permanently mounted foundation components are identified with key numbers.

To build the various circuits, it is necessary to change the connections of only a few fixed resistors, capacitors (condensers) and wire leads. The larger components, including the isolation transformer, tube and coil sockets, variable capacitor C1, selenium rectifier, dual electrolytic filter condenser and the potentiometer R1, all remain in one location and therefore can be wired in their respective positions as shown in Fig. 1-A and photo B. The wires shown in Fig. 1-A will not be changed for any circuit. No. 20 hookup wire with bright-yellow insulation was used for the foundation unit to identify that permanent circuit. Wire with insulation of a contrasting color is used for wiring the various circuits. After completing the wiring for the foundation unit, tape the line-cord terminals No. 1 and No. 2 that are connected to the transformer primary.

(Continued to page 252)



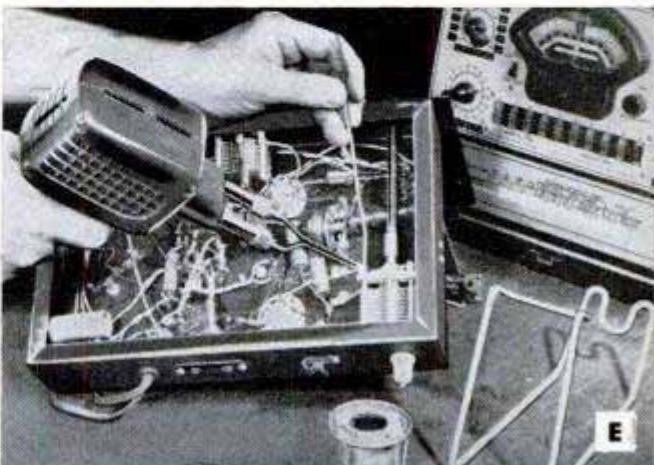
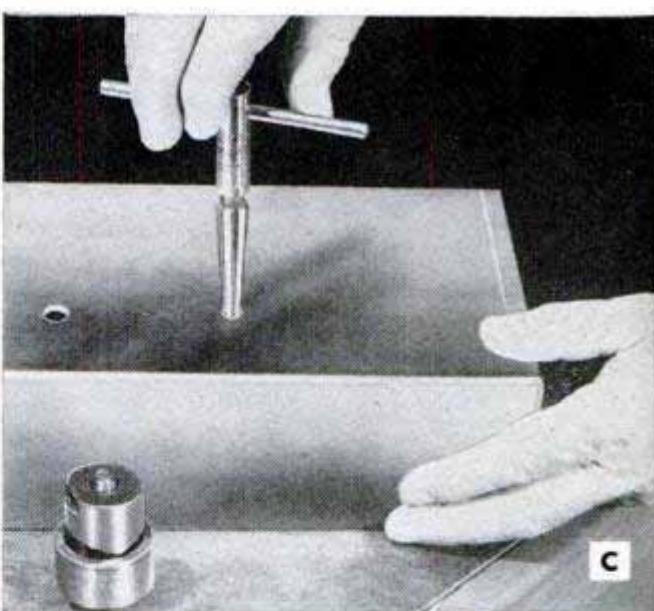
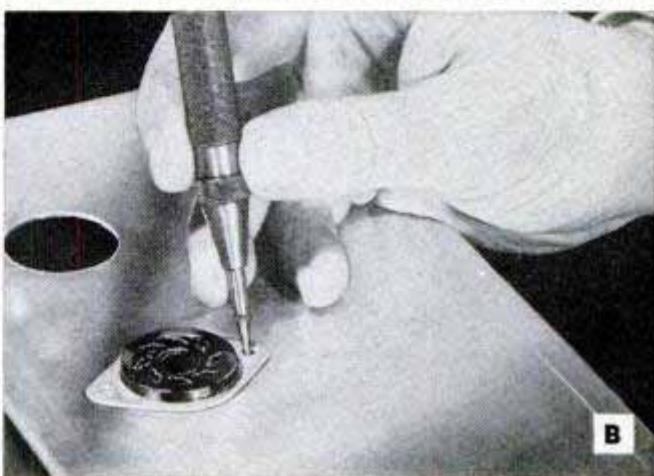
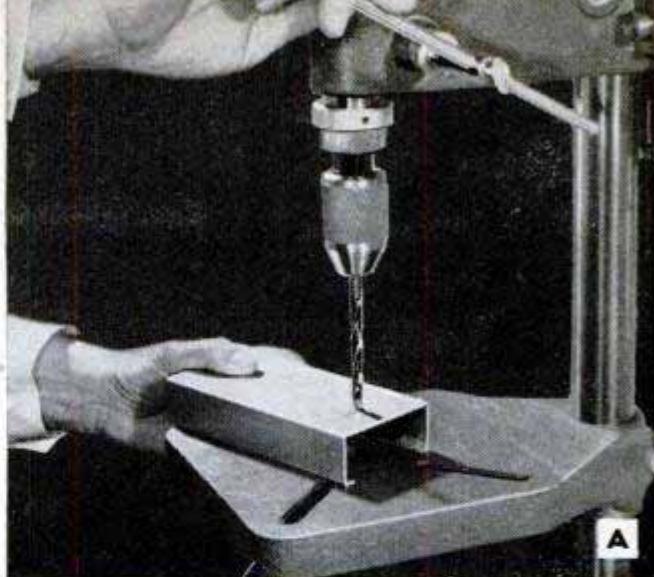
# Tools for Radio Students and Experimenters

SPECIAL TOOLS are seldom required in radio experimenting and ordinary classroom projects, however there are a few that are great timesavers and they enable the worker to do a better job.

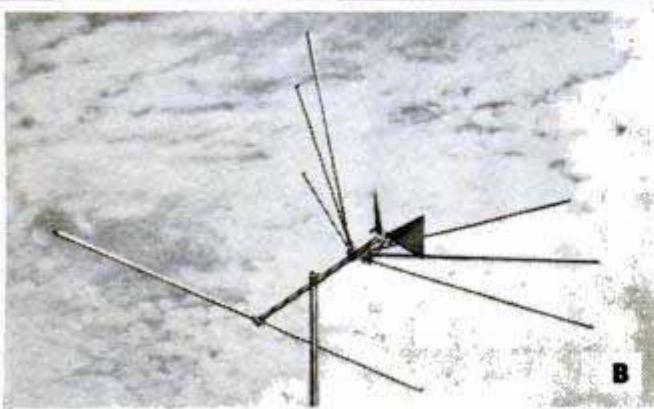
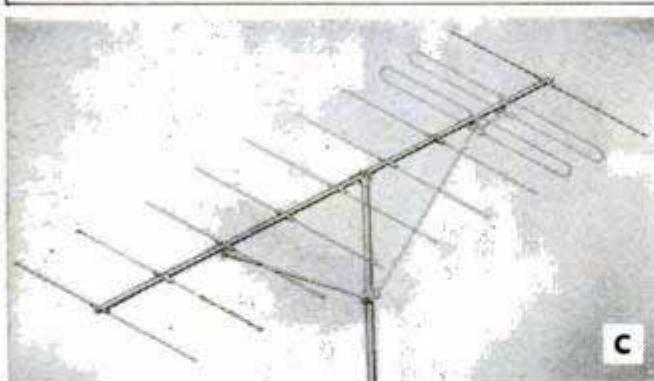
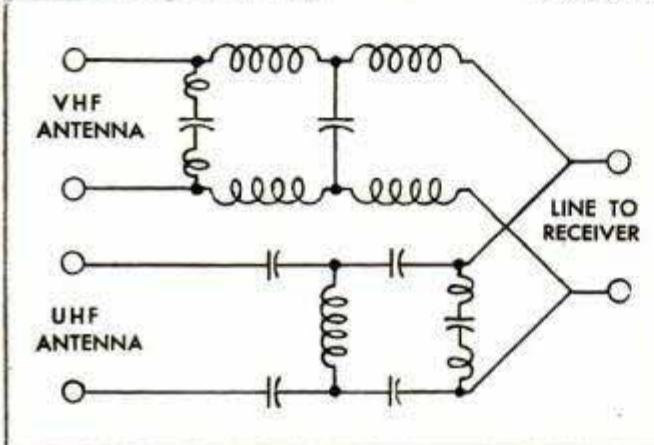
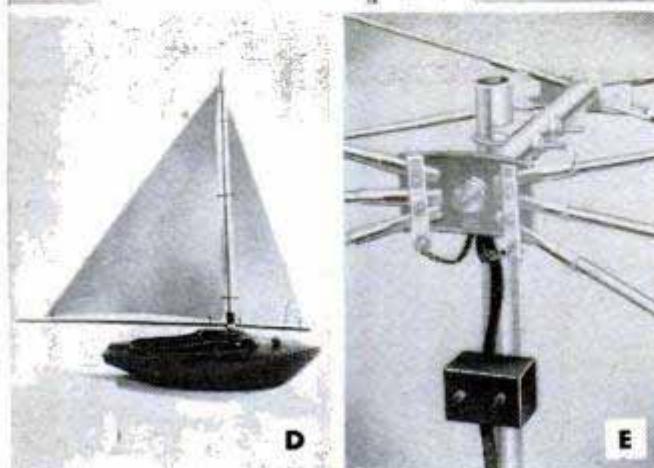
The efficient, inexpensive, bench-type drill press shown in photo A takes up very little room on the workbench and is a great timesaver in drilling the many small holes necessary for mounting parts on chassis bases. If the holes to be drilled are slightly larger than the usual  $\frac{1}{4}$ -in. drill bit, enlarge them with a tapered reamer of the type shown in photo C.

When still larger holes are required for mounting tube sockets you can cut them with standard-size chassis punches like the one shown in front of the metal base in photo C. These chassis punches will cut holes in metal chassis up to  $\frac{1}{8}$  in. thick. For sizes  $1\frac{1}{2}$ -in. and smaller, first mark the chassis at the desired location with a center punch or ice pick. The punch shown in photo B is an automatic variety handy for marking thin-metal bases. A hole  $\frac{1}{32}$  in. larger than the drivescrew in the punch is then drilled in the chassis. Then the screw is inserted through the die and hole in the metal chassis. All that is necessary to cut the hole is to turn the cap screw with an ordinary wrench. These punches come in a variety of standard sizes. Most commonly used are the round-hole sizes  $1\frac{5}{32}$  in. and  $\frac{5}{8}$  in. The larger size is for standard Amphenol tube sockets and outlets; the smaller for the miniature-tube bases. Square-hole punches also are available.

Instant-heat electric soldering guns like the one shown in photo E are now in common use by radio and TV servicemen and experimenters. They heat in about five sec. and cool rapidly. Screw-holding screwdrivers of the type shown in photo D are handy for holding the screw on the bit of the screwdriver in hard-to-reach places.



# TELEVISION TODAY

**A****B****C****D**

TELEVISION ENGINEERS are constantly on the alert to develop new equipment to meet the demands of this fast-moving industry. Responding to the need for equipment with increased mobility to facilitate close-ups from ringside level during fight telecasts, the engineers at CBS have designed the small portable camera unit shown in photo A. This unit houses the image orthicon, a tube removed from the standard CBS TV camera, with its necessary controls. The remote "mother camera" is connected by means of a cable.

Unusual TV-antenna systems are being developed to combine receiving facilities for the new UHF channels with the present VHF channels. The array shown in photo B covers channels 2-83. To differentiate the UHF spectrum from the VHF this system uses the filter network shown in the diagram. It consists of a high-pass and low-pass setup, which isolates the VHF antenna from the transmission line for the UHF "bow tie" antenna. This system works in reverse for the VHF antenna.

The 10-element TV antenna for fringe areas, illustrated in photo C, incorporates eight directors, a two-diameter driven element and reflector. The single bay is claimed to have a gain of 11 db.

Photo D shows a table-top indoor TV antenna in the form of a model boat. A tuning condenser and the movable boom are claimed to provide perfect impedance match for any TV set.

Automatic impedance matching is the function of the small unit attached to the TV-antenna mast in photo E. The manufacturer claims the device will give a perfect match, thus increasing signal strength on all channels. Photo F shows an engineer at Bell Telephone Laboratories testing a new coaxial-cable system capable of handling 600 telephone conversations and one TV program in each direction over the same pair of coaxial tubes at the same time.

**F**

**"Sorry, Joe. I don't lend  
my tools to anybody."**

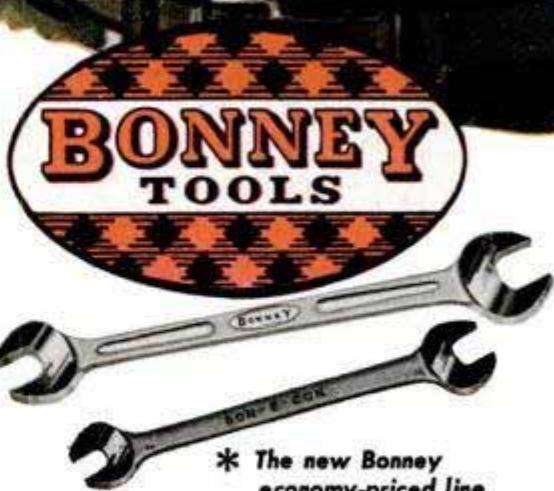


"Nothing personal, understand. But you should have learned long ago to build your kit around good tools.

Look at those Bonney tools of mine. Cost less than you think, and for my dough the best any mechanic can buy.

If you're short of cash right now, get yourself some BON-E-CON\* wrenches. They're real mechanics' tools with the regular Bonney guarantee, and priced so that an apprentice can afford them.

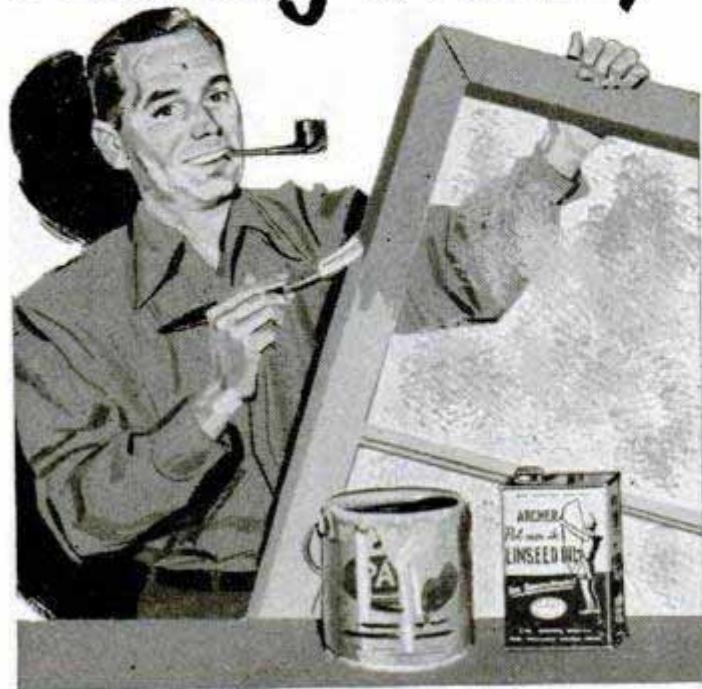
With those as a starter, before you know it you'll build up to a kit like mine."



\* The new Bonney economy-priced line

Remember. Your local Bonney Jobber, as well as Bonney, stands behind the tools you buy. He has Bonney tools priced to fit your needs as well as your pocketbook.

# If You Make Painting a Hobby-

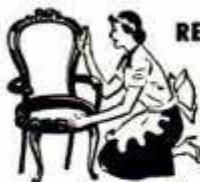


You'll get a lot more real satisfaction and pride of ownership out of a home that is clean and neat and trim in a fresh coat of paint! Pays its own way by improving your property, too!

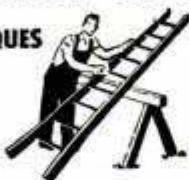
Because Archer Pol-mer-ik contains polymerized oil, it gives you a tougher, more durable paint film than ordinary linseed oil. When you reduce your paints with Pol-mer-ik, they brush easier, level better, and give you a smoother, dirt-resisting finish. Wonderful brush conditioner, too!

- Handiest single product in your house or shop. Does the job of a dozen specialized products. A few of

## POL-MER-IK'S 101 HANDY USES:



REFINISHING ANTIQUES



PROTECTING LADDERS



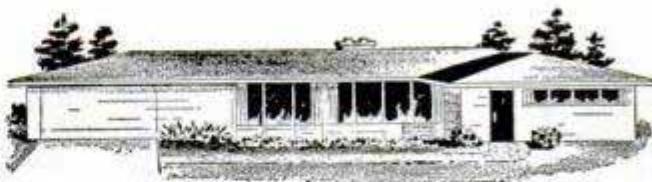
SEALING SCREWS



PROTECTING GUN STOCKS

**ARCHER**  
**Pol-mer-ik**  
**LINSEED OIL**  
**PROTECTS MOST EVERYTHING**

## Clinic for Homemakers



As a service to our readers in solving the hundreds of problems pertaining to a home—inside or out—the editors of Popular Mechanics invite you to present your problems to The Clinic Editor for help and advice. Address your questions to The Clinic Editor, Popular Mechanics Magazine, 200 East Ontario Street, Chicago 11, Ill.

### Removing Copper Stains

Q—I have bronze screens on all the windows in my home, which is of brick with concrete window sills. The sills are badly stained a greenish color and the screens have turned dark colored, particularly near the bottoms. It seems impossible to remove the stains on the sills by any ordinary means. I tried scrubbing the concrete with various washing solutions with little or no success. Do you have any suggestions?—T. W., Wash.



A—The removal of copper, or bronze stains from concrete sills is not simple. You do not say how many windows are affected, but a thorough job of cleaning several sills involves considerable labor and time. This immediately points up the question of whether it is worth-while. However, if you wish to undertake the job, one of the simplest ways of removing the stain is to dry-mix ammonium chloride, 1 part, and powdered talc, 1 part. Stir in sufficient ammonia water to make a paste. Apply the paste to the stained areas with a wide putty knife and allow to dry. When this is washed off most of the stain will come with it. On some areas where absorption is greater, two or more applications may be necessary. Recurrence of the stain can be prevented, to some extent at least, by coating the screens with a half-and-half mixture of linseed oil and turpentine or clear plastic of the type supplied in a pressurized container.

### Condensation on Windows



Q—Why do the windows in my home sweat during cold weather? I have hot-water heating, the outside walls and ceilings are insulated and the windows have wooden sash frames, yet we are troubled all winter long with moisture running down the panes and staining the paint. Is there any cure for this trouble?—S. A., N. Y.

A—The simplest explanation, although it does not state the causes in their entirety, is that the window pane is colder than the air in contact with it on the room side. Moisture in the air condenses

(Continued to page 236)

*choice of the*



**BIG TWIN**, 25 H.P.\* Gearshift with neutral, forward, reverse. Cruis-a-Day Tank. Engineered for quick attachment of new Evinrude Simplex Remote Controls. **\$390**

**SUPER FASTWIN**, 15 H.P.\* New straight through—dazzling performance—only 67 lbs. Quickly attachable Simplex Remote Controls at moderate added cost. **\$325**

**FLEETWIN**, 7.5 H.P.\* Only 47 lbs. The favorite for family and fishing boats. Duo-Clutch and Safti-Grip Drive. **\$210**

**LIGHTWIN**, 3 H.P.\* 32 lbs. Built with famed Fisherman Drive—lets you go "wherever there's water to float your boat." **\$145**



*champs!*



Evie Wolford

## EVINRUDE BIG TWIN

"*America's finest outboard motor*"

says Bruce Parker, National Water Skiing Champion

"No sport tests a motor like water skiing. I've tried them all, and Big Twin is the answer on every count. This motor powered me to eight 1952 titles, and Big Twins are used exclusively at the Bruce Parker water skiing schools in Amityville and Nassau. These motors have piled up thousands of hours of top speed towing and delicate maneuvering, with constant gearshifting for pick-ups and take-offs.

Big Twin is America's finest outboard motor."

Big Twin's superb performance is yours at *lowest cost per horsepower* in the outboard field. It's America's top choice for powering runabouts and big family boats, fast fishing craft and cruisers.

See your Evinrude dealer—look for his name under "Outboard Motors" in the yellow pages of your phone directory. Catalog Free—write today for full-color catalog of the complete Evinrude line. **EVINRUDE MOTORS, 4159 N. 27th St., Milwaukee 16, Wis.**

*In Canada:* Manufactured by Evinrude Motors, Peterborough, Ontario.



Here is Bruce Parker and his trophy-laden troupe at the '52 National meet, American Water Skiing Association, Minocqua, Wisconsin. (From left) Barbara Goode, Eastern Girls' Champion; Bruce Parker, National Senior Champion; Evie Wolford, National Slalom Champion; Jim Myer, Eastern Boys' Champion. In '52 Big Twin powered Bruce to 8 titles. His skiing partner, Evie



(Continued from page 234)

on the cold surface of the glass, the amount of the condensate varying with the humidity of the air in the room. There are a number of sources of water vapor in the home which may combine to keep the humidity at a constant high level, especially during winter months when doors and windows are kept closed. Ordinary daily activities such as cooking, bathing and laundering may release as much as five to seven lb. of water daily to the air in the rooms of the average home. This moisture, contained in the air in the form of vapor, will condense on any surface which has been cooled below the dew point. This may be on the window panes, as in your case, but also may be on the walls and ceilings, floor joists in basementless homes and nail heads, rafters and roof boards in attics. Storm sash will help to minimize condensation on the window panes. Storm sash should be sealed with felt strips and attached with turn buttons rather than hangers. In some cases it is necessary either to weather strip the inner sash frames or seal them with adhesive tape to prevent leakage of warm air.

#### Downdraft in Chimney

*Q—My home is built in the open, the nearest trees and buildings being more than 300 ft. distant. The top of the chimney is more than 4 ft. above the roof ridge, yet I am troubled with downdrafts in both the fireplace and furnace flues. These are strong enough at times to bring soot and dirt into the room from the fireplace and sometimes there are noticeable fumes from the oil burner. What can be done to prevent this condition?—B. Y., Kans.*



*A—Of course, it's not possible to be certain at this distance, but we'd guess right away from your description that air is being drawn down the chimney flues because of what in effect amounts to a slight variation in air pressures inside and outside the house. Most types of heating equipment require fairly large quantities of air for complete combustion of fuel. Tightly built, insulated homes frequently become "airlocked" to such an extent that fresh air does not infiltrate as fast as it is consumed by the heating equipment. This in combination with a cold chimney, results in the creation of a downdraft in the chimney flues. Although the simplest remedy is to admit more air through an open door or window, a better method is to bring air from outside to the furnace by means of a small duct. If this is done you probably will experience no further trouble with the fireplace.*

#### Estimating Required Amounts of Wallpaper

*Q—I want to repaper my home both upstairs and down. How do I estimate the amount of wallpaper required?—A. Y., Ga.*

*A—In some homes it is difficult to estimate total requirements accurately but it is probable that the following table will be of help to you:*

#### SINGLE ROLLS

Size of room	Height of Walls (rolls req'd.)	Border (yards)	Ceiling (rolls)
	8 ft.	9 ft.	
8x12	10	11	4
8x14	11	12	4
10x14	12	14	5
10x16	13	15	6
12x16	14	16	7
12x18	15	17	8
14x18	16	18	8
14x22	18	20	10
15x16	15	17	8
15x18	16	18	9
15x20	17	20	10
15x24	20	22	12

Note—Amounts specified are over the actual requirements to allow for trimming and wall irregularities. Deduct one roll for each door or window of average size.

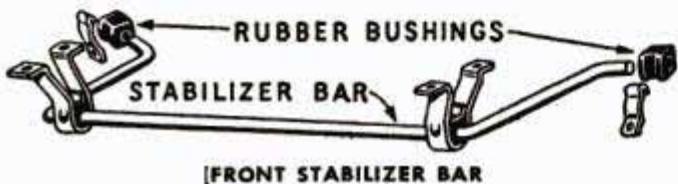
## Care and Feeding of Engines

BY S. P. CORP

### HARD STEERING, SIDESWAY, AND RATTLES

If your car is small, you have a stabilizer bar at the front. If it is large, you have stabilizers both front and rear. Stabilizers are used to offset the tendency of any car to lean outward on a curve, as weight shifts to the two outside springs.

Looking under the front, you will find this bar attached to the frame side members, with ends bent toward the rear forming lever arms. It is mounted in rubber bushings, both at the frame and at the lower support arm.

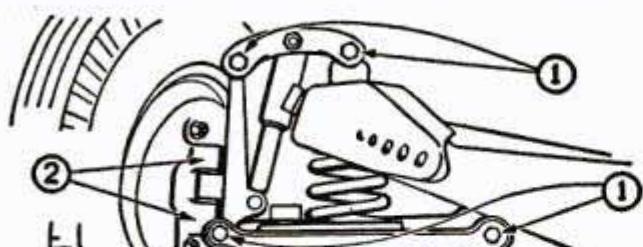


When these bushings deteriorate as a result of excessive lubrication and road shock, your car will steer harder, there will be more sidesway, and you may develop an irritating rattle, especially on rough roads. If your car has a rear stabilizer, it is subject to the same trouble.

To end the trouble, replace the rubber bushings!

### KING PINS AND TIRE WEAR

Months of winter driving may have caused slush, ice, and salt to penetrate front wheel suspension parts, causing wear and affecting alignment, which causes tire wear.

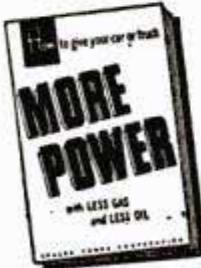


[FRONT WHEEL SUSPENSION]

Right now is a good time to inspect these parts—(1) the threaded bushings of upper and lower control arms, and (2) the king pin bushings and pins. Replace them if worn.

### BEST BET FOR RING REPLACEMENT

Sealed Power KromeX Ring Sets are your best bet for double mileage when you re-ring your engine. Sealed Power chrome rings are used as original equipment by 23 leading engine builders. Only Sealed Power KromeX Sets have the famous MD-50 Steel Oil Ring, with the Full-Flow Spring. Write for your free copy of "MORE POWER, Less Oil, Less Gas," a valuable illustrated manual on car care. Sealed Power Corporation, Dept. G-4, Muskegon, Mich.



**Here's a job you  
can do yourself**



**Finish your attic**

**with**

**ARMSTRONG'S TEMLOK**

Here's the practical and economical way to expand your home. Build a comfortable extra room in your attic with walls and ceilings of Armstrong's Temlok Plank and Tile. It's an easy job . . . one you'll enjoy doing yourself.

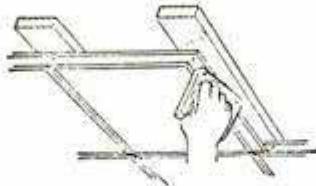
Armstrong's Temlok is a sturdy wood fiber material that builds, decorates, and insulates. Both Temlok Tile and Plank have the exclusive "Lok-Bevel" joint. This tongue-and-groove type joint conceals the nails or staples that hold the material in place and insures a tight, level surface.

Temlok's smooth factory finish is ironed on. Temlok Plank comes in a soft random coloring called "Suntan Blend." Temlok Tile is finished in both Snow White and Light Ivory.

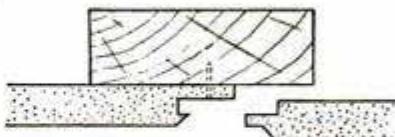
Ask your lumber dealer about Armstrong's Temlok. He'll show you samples and help you plan your job. For the free booklet, "New Ways to Remodel an Old Home," write Armstrong Cork Company, 9004 Ross St., Lancaster, Pa.



Nail 1" x 3" wood furring strips on 12" centers over the framing members. For extra insulation, staple Armstrong's Insulating Wool between knee wall studs and rafters.



Staple Temlok Tile or Plank to the furring strips. Shim if necessary for level surface. Stapling usually permits more rapid application, although nailing is equally effective.



The Lok-Bevel joint conceals the staples and makes installation easy. It also allows for seasonal expansion and contraction, preventing unsightly open gaps at the joint lines.

## **ARMSTRONG'S BUILDING MATERIALS**

**Temlok® • M-67 Monowall® • Cushiontone® • Insulating Wool • Hardboards**

(Continued from page 10)

To the Editor:

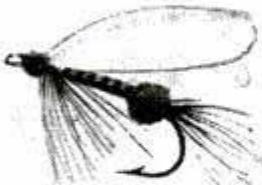
In your February issue you have incorrectly called the car at the bottom of page 132 a 1911 Cadillac. It is a Mercer circa 1921 owned by Jos. Murchio of Greenwood Lake, N. Y.

C. W. Reed,  
Glen Ridge, N. J.

# TIME SAVING TIPS

ALL YOU NEED IS A TUBE OF  
**DU PONT DUCO CEMENT**

REG. U. S. PAT. OFF.



MAKE FISHING LURES and secure loose line guides with tough, waterproof Du Pont "Duco" Cement.



LOOSE WINDOW STICKERS need not flap or peel off. Replace with transparent Du Pont "Duco" Cement.



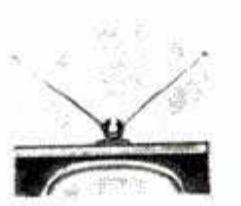
CHIPPED KEYS strike a sour note in a piano's appearance. Mend broken keys with "Duco" Cement.



TIPS FOR SHOELACES. When metal or plastic tips break off laces, form new tips with "Duco" Cement.



A WATCH CRYSTAL won't keep popping out when you use transparent "Duco" Cement to hold it in place.



INDOOR TV ANTENNAS won't mar polished surfaces when felt bases are attached with "Duco" Cement.



NAME PLATES IN OVERSHOES prevent mix-ups in the school coatroom. Put them in with "Duco" Cement.



REPAIR CHIPPED GLASS. The transparency of "Duco" Cement makes the repair neat—almost invisible.



A HOUSEHOLD  
FAVORITE FOR 25 YEARS



BETTER THINGS FOR BETTER LIVING  
...THROUGH CHEMISTRY

## Rebuttal

Some of our readers have taken sharp issue with the expressions of the three Detroit automotive engineers whose interview appeared in the February issue under the title "American Engineers Look at Foreign Cars." To give the sports car and foreign enthusiasts their "day in court" we publish as rebuttal the following excerpts from their letters to the editor:

\* \* \*

I am an American-born citizen but occasionally I get really exasperated with the smug complacency of Americans. We are quite happily convinced that nothing made anywhere else in the world is worth-while. Nowhere was it better illustrated than in this article in which three engineering experts sit in judgment—actually on themselves! I say, in judgment on themselves, because the fruits of their own efforts had to be brought into comparison to justify the statements of Messrs. Graves, McCauley and Walker.

R. C. Nicholson,  
Master Rule Co., Inc.,  
Middletown, N. Y.

\* \* \*

I learned auto engineering in Belgium and used to see all makes of cars. I don't understand these gentlemen; this is the funniest thing I ever read about European production. I guess they never drove in a Hotchkiss or Delage, Austro Daimler, Mercedes Benz, Adler, Hanomag or Hispano Suiza. I can assure you that these automobiles are really beautiful and they could match any American cars.

Rene P. Veroul,  
Los Gatos, Calif.

\* \* \*

The best thing I can say about this article, in an otherwise fine magazine, is that it is provocative.

Dick Fancher,  
Fairfield, Calif.

\* \* \*

Having lived in France for three years and being an avid automobile enthusiast, I feel I am sufficiently acquainted with

(Continued to page 242)



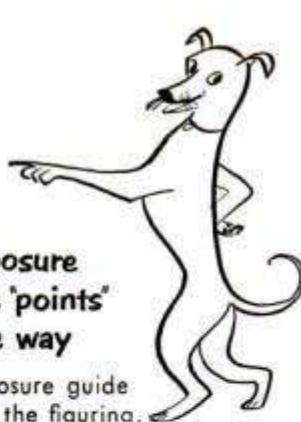
### A little film goes a long way

Uses economical 8mm. roll film with easy, no-thread loading. Enough film in each roll to shoot 30-40 average-length movie scenes!



### Movies rain or shine

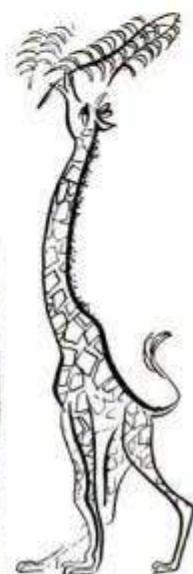
Your choice of an f/2.7 lens . . . plenty fast enough for cloudy-day shooting . . . or a super-speedy f/1.9 job that can see in the rain. Both Lumenized (hard-coated), of course.



### Exposure guide 'points' the way

Built-in exposure guide takes out all the figuring, leaves only the fun . . . makes sure exposure's on the button every time!

# It's the sportsman's movie camera



### Telephoto for long reach

It's an accessory 3x to let you come up close on those hard-to-reach shots. View finder shows fields for standard or telephoto lens.

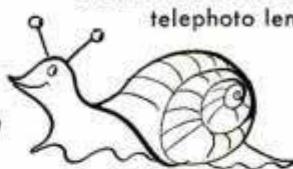


### Tough...rugged

Die-cast aluminum body is built to take it. Your "Reliant" thrives on rough going — yet it's sweet-running as a custom-made reel.

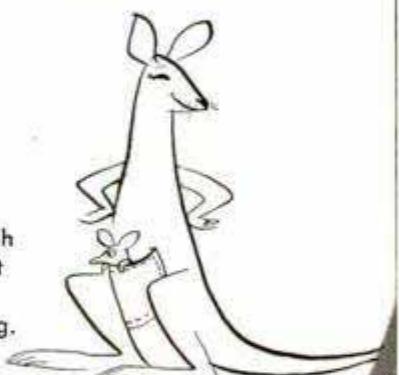
### Slow motion, too

Really cuts fast action down to size. Use it with any film, either lens, for those extra-detailed effects.



### Slips in a pocket

Light and compact enough to slip in a jacket pocket where it's always ready when action starts popping. Swings and points as easily as your own 12-gauge.



### Color movies, of course

Gets wonderful full-color movies as easily as black-and-white. Inexpensive, too, Kodachrome movie film costs only \$3.95 a roll . . . complete . . . ready to show!



See "Photographic Equipment and Supplies"

### See the "Reliant" at your Kodak dealer's

He'll be happy to help you choose the model that's right for you, the f/2.7 or the f/1.9. Either way you're getting "tops" in movie-making enjoyment. Other Kodak movie cameras from \$42.50.

# Kodak

## Trouble Shooters for the TV Skyway

(Continued from page 135)

of the high Des Moines tower. Somehow, they heard about the little sick boy lying in a hospital near by, watching their every movement with avid eagerness. One evening, they arrived at the hospital in a group to call upon their young admirer, presenting him with a red tin hat (the badge of a gang foreman) and an elaborate Erector set with which he could build his own relay tower.

Outwardly, they're just average guys. Take Merle Newton, for instance. This busy technician, with a tinge of Kansas in his flat drawl, is on intimate speaking terms with every coil of wire behind the meter panels in the Denver office. With him in charge, no little microwave is going to get far out of step. Newt showed us a microwave transmitter, carefully pointing out how each of its three "stairstep" stages is separately tuned in this grounded-grid amplifier. He also explained the C1-Alarm bay.

"The relay points," he said, "are unattended except for our routine monthly checkups, or unless there's trouble. Ordinary telephone lines connect each station with its alarm center. One of the cleverest tricks of the whole system is the 'unseen stool pigeon,' a mechanical tattletale which

lets us know immediately if anything is wrong, even tells us if the room is too warm or that the front door has swung open. Over 25 trouble indications can be reported back to home base. For instance, if we've blown a fuse in one of the circuits somewhere in this territory, this robot indicator from a station, such as Buckhorn, gives us a trouble signal on the C1-Alarm bay here in Denver, causing it to light up like a Christmas tree and starting its bells to ring. One of the attendants, constantly on duty, quickly pushes a series of buttons and rescans the alarm trunk by automatic step switches, and first thing you know he will locate the trouble area and dispatch a crew to fix it."

"It's possible," added Newt, "for any plant to operate for three or four weeks when power lines are down, falling back on its emergency 20-kilowatt diesel-generator supply. The equipment uses heavy-duty storage batteries to supply the filament and plate power. A charging current is furnished by a rectifier normally connected to commercial lines."

In order that we might see for ourselves the inner sanctum of one of these stations, Newt took us over the rugged road to Buckhorn Mountain, where two men had been working on a temperamental rectifier's insides for two weeks. Leaving Fort Collins,

(Continued to page 244)

# give your hair that "JUST-COMBED" LOOK all day long

Because of Viratol—\* a special compound found *only* in 'Vaseline' Cream Hair Tonic —hair stays in place, looks and feels natural all day long.

Try it *today*—and see if your friends don't notice the difference in your appearance. 'Vaseline' Cream Hair Tonic contains Triple-A Lanolin, too... and it's homogenized for easy flow.



# Vaseline CREAM HAIR TONIC

TRADE MARK ®

VASELINE is the registered trade mark of the Chesebrough Mfg. Co., Cons'd

**when you go for these...**

**GO WITH THIS!**

**NEW**

KIEKHAEFER  
**MERCURY** *Mark 5*

**with PUSH-BUTTON NEUTRAL CLUTCH**

- 5 HP Alternate Twin
- 360 degree steering,  
Neutral Clutch
- Full weedless operation with  
Dual-Purpose Drive
- Superior idling for smoother,  
slower trolling
- Full Jeweled Power — ball  
and roller bearings throughout

To be sure you're there when that silvery streak of fury dynamites the surface of your favorite fishing spot . . . go with Mercury.

Go with the new Mark 5 . . . feel the smooth surging power as you open the throttle . . . throttle down to smooth hour after hour trolling. And when the battle royal starts you have all the advantage . . . the convenient new PUSH-BUTTON NEUTRAL . . . 360° steering for complete maneuverability . . . flashing speed to stay with him. And remember, your Mark 5 is "safety engineered" for your extra pleasure all season.

Write for FREE illustrated catalog, "Tomorrow's Outboard—Today" and see the new 1953 Mercurys at your dealer's. He's listed in the yellow section of your phone book. **KIEKHAEFER CORPORATION, FOND DU LAC, WISCONSIN.**

*Features of Mercury motors are protected by issued or pending patents.*



# Get Out of the "Snapshot Class"!



Graflex Prize-winning Photo  
by Carl Franks

GRADUATE TO A...

# Graphic

When a story is breaking in front of his lens, a press photographer needs a dependable camera that's easy to use. That's why over 95% of them own Graphics. Rugged Graphics are as easy to use as folding cameras, yet are versatile enough to handle everything from action to portraits. Examine the Pacemaker Speed and Crown Graphics—each in three sizes. See the Century Graphic, too, only \$108 with f/4.5 lens. Your Graflex dealer will show you how easy and economical your Graphic graduation can be. See him!



Graflex Inc., Dept. 22A  
Rochester 8, New York

Please send the new FREE 48-page booklet.

Name \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_

County or Zone \_\_\_\_\_ State \_\_\_\_\_

(Continued from page 238)

European designs to see both sides of the picture. This article was nothing but a conglomeration of misstatements, exaggerations and contradictions. . . . Ask Mr. Graves how many 327-cubic-inch Packards have run out of road trying to chase a little 74-cubic-inch MG through a few good corners. And if he is under the impression that coil springing is as effective as torsion bars for roadholding, has he ever seen a big American car lean and sway through a shallow curve at a good speed? There is much to be learned on both sides of the ocean. Give credit where credit is due. If Detroit would get out of its present rut and give the people the facts, American cars could be much better built, safer and more economical, and yet retain most of the genuine advantages of our present designs, without the chrome-plated glitter that is today's excuse for quality.

T. Balfour, Cpl., USMC,  
Control Tower, MCAS,  
Quantico, Va.

\* \* \*

We are writing you in regard to the ridiculous piece of trash, "American Engineers Look at Foreign Cars" in the February issue. What sort of morons do you take your readers to be? We have always been of the opinion that *Popular Mechanics* has been for mechanically minded persons. That article must have been printed for the benefit of people who know nothing about automobiles and cannot detect that it is totally absurd.

Here are our opinions on the matter of American automobiles:

There would be a good market for a small car in the United States if a better and cheaper car than existing European models could be made. No one enjoys driving an American inverted bathtub on wheels in heavy traffic.

Cars should be made shorter and narrower to aid in parking and in traffic.

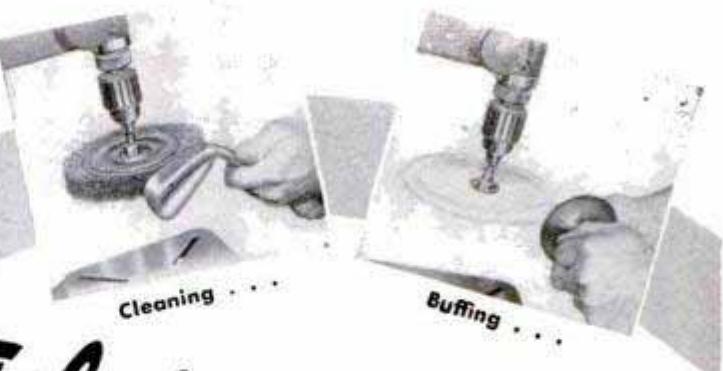
The public in general is interested in gasoline economy. With gas prices what they are today, no one likes to unnecessarily waste fuel.

We would certainly rather have a noisy engine in a superior frame than a quiet one in an inferior frame. We would rather be uncomfortable and alive than luxuriously dead. Not all foreign cars are noisy.

A Bentley surpasses a Packard in every detail. In body work, for example. Why should one not use the clutch? Performance should be emphasized. The American public cannot be sold on hot-rod tactics because there is not a car made here today,

(Continued to page 248)

# MOST USEFUL TOOL FOR YOUR SHOP

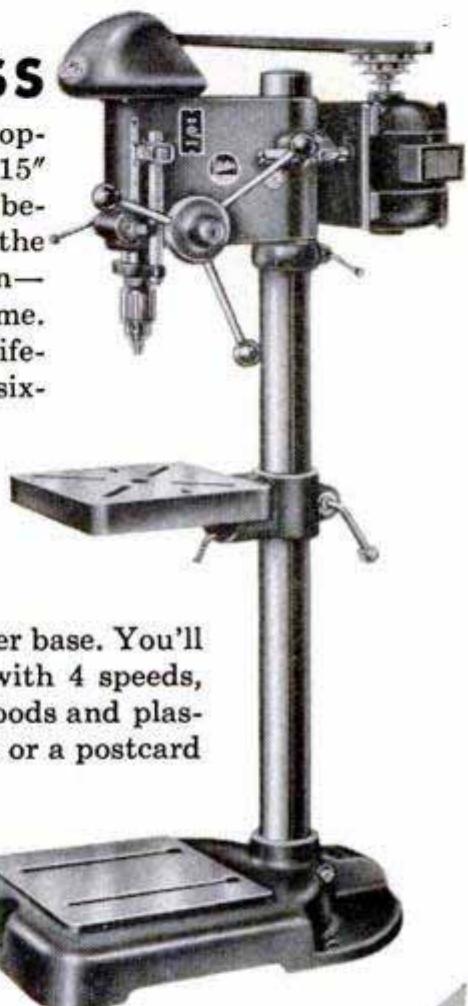


## Atlas 15" DRILL PRESS

You get yourself a whole "shopful" of tools when you install an Atlas 15" drill and accessories. The photos just begin to show its usefulness and hint at the money you can save—while having fun—fixing and making things for your home.

And the Atlas is built to last you a lifetime—with exclusive "floating-drive," six-splined spindle, steel drive sleeve, 4 sealed-for-life ball bearings, new exclusive depth control stop, extra-heavy head, table, column, and base for accurate work.

It gives you 41" work capacity over the precision-ground table, 46" over base. You'll probably want the high speed model with 4 speeds, from 580 to 5200 RPM, for work on woods and plastics as well as metals. Send the coupon or a postcard today for latest catalog.

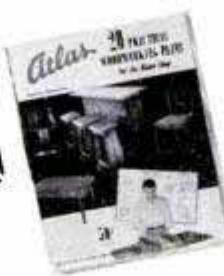


**FREE  
CATALOG  
WRITE  
TODAY**

**ATLAS PRESS COMPANY**  
424 N. PITCHER ST., KALAMAZOO, MICH.

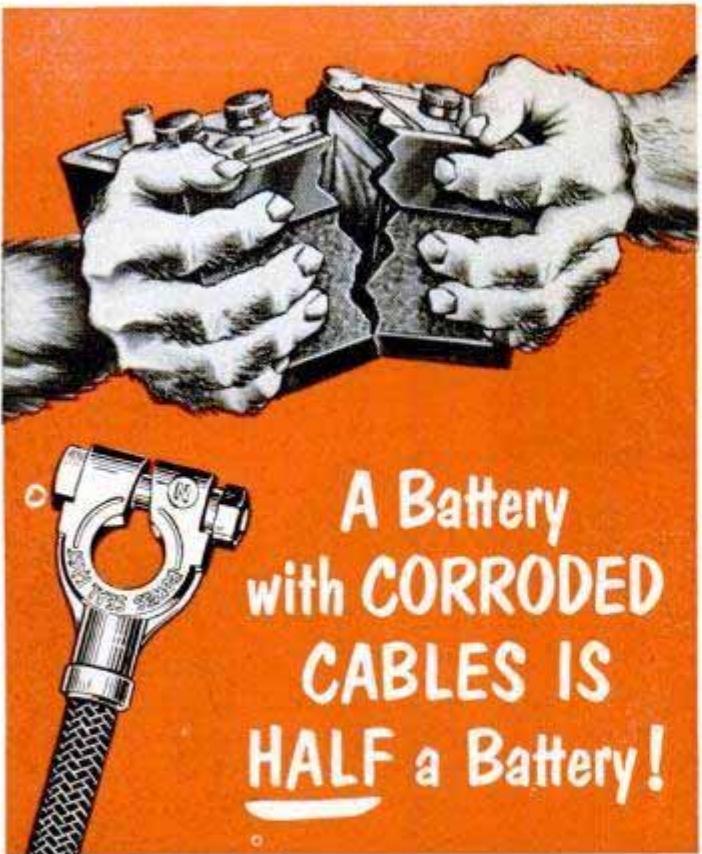
- Please send free woodworking tool catalog.
- Enclosed is .... for .... 20 Plan Books.

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City, State \_\_\_\_\_



## 20 PRACTICAL PLANS

Finest plan book you've ever seen! New authentic designs by noted furniture designers with easily followed instructions. Also includes drawer construction, standard joints, gluing and finishing hints. Price \$.50, postpaid, \$.65 outside U.S.A.



## A Battery with CORRODED CABLES IS HALF a Battery!

WHEN your battery cable terminals are corroded, your battery uses up much of its power to force its necessary electrical energy through "juice"-stopping corrosion. This makes for harder starting . . . less efficiency throughout your motor . . . shortens the life of both battery and battery cables.

Insist on **BOWES**  
 **CORRODELESS**  
**TERMINAL**  
**BATTERY CABLES**

Bowes "Seal Fast" battery cable terminals positively will not corrode, and are specially engineered to fit the battery posts snugly, assuring longer cable life and full power from your battery. Stop battery cable trouble before it begins . . . and . . . increase the life of your battery. Your Bowes dealer can supply you.

**BOWES "SEAL FAST" CORP., INDIANAPOLIS 7, IND.  
BOWES PACIFIC CORP., RIVERSIDE, CALIF.**

we crossed the winding Poudre River and jolted higher and higher up Rist Canyon until we reached the top of Buckhorn.

Newt pointed out the four big antennas at each corner of the platform on top. "A transmitting and a receiving horn are needed for each direction," he told us. "These metal-lens antennas, made of aluminum alloy and weighing about one ton each, make it possible to focus the microwave like a searchlight beam."

The white cement-block building in its stark simplicity might have been a set for the latest Space Patrol episode. Inside, everything was the same battleship gray. Four large line-ups, eight bays in each, formed a simple crisscross design, with paths between, in the square room. Just the whir of a ventilating blower broke the quiet voices of the two shirt-sleeved men, working over one of the panels.

Newt explained, "When there's trouble on one channel, causing TV to fail between Denver and Rawlins, say, the whole section is switched to the spare circuit while the crew is fixing whatever's wrong. The channels are intact all the way through. Remember, microwave relay stations aren't exclusively for television. There are six channels now, three in each direction. One is assigned to telephone. Right now there are 228 two-way telephone-message circuits passing through here, and soon we'll up it to 600. Then, of course, one channel is for television, and the third is the protection circuit, which switches in automatically if there's trouble on the telephone channel. On TV, it has to be done manually. Soon, we expect to have two more channels, and in another year or so, we'll have 12 in full operation. Then each of the major TV networks can have a circuit to itself and won't have to share the microwave. At the present time, the television sound is transmitted over special long-distance-telephone cable which has single side-band carrier circuits, arriving at the same time as the picture, with perfect synchronization between the two.

"Once a month," he continued, "we go out to routine the channels at the five relay points in the Denver area. A channel consists of a receiver and a transmitter and we test every part to be sure it's in proper working order. First, we check the filament and plate voltage of the 416A amplifier tubes. These electron tubes for superhigh frequencies are constructed to extremely precise standards. The transmitting side has four and the microwave generator has two, making a total of six in each channel. Then we sweep the bay. We get a release from the control point, taking the channel out of

(Continued to page 246)

# GOOD NEWS! THIS BEAUTIFUL VINYL-PLASTIC TILE FLOORING RESISTS GREASE, ACID, ALKALI YET COSTS YOU LESS!

**MATICO**  
**ARISTOFLEX**

The New Low-Cost Tile  
Flooring Made of Vinyl—  
The Wonder Plastic!

Costs Less To Begin With! Aristoflex—in economical standard gauge—is produced especially by MATICO to meet the needs of homeowners everywhere. It resists dirt, grease, acid and alkali... stays sparkling clean with occasional damp moppings... is quiet and comfortable underfoot... comes in 13 radiant Coronation Colors... lasts for years and years. Best of all, Aristoflex costs less than any other flooring of comparable quality... gives you far more for your money. See Aristoflex at your friendly MATICO dealer—he's listed in your local classified telephone directory!



install  
**ARISTOFLEX yourself**  
**SAVE STILL MORE!**

Yes, you can save \$25, \$30 or more on every room by installing Aristoflex yourself. It's easy, too, with MATICO's tested install-it-yourself method—special tool kit—and illustrated instruction booklet. And you can install Aristoflex in any room from basement to attic because it's rugged vinyl-plastic throughout—there's no felt backing to wear off or deteriorate.



**MASTIC TILE CORPORATION  
OF AMERICA**

Member: Vinyl Flooring Institute  
Joliet, Ill. • Long Beach, Calif.  
Newburgh, N. Y.



# Build A FIREPLACE



around this scientifically designed steel form which also provides circulating heat and assures perfect Fireplace operation.

## free folder tells how

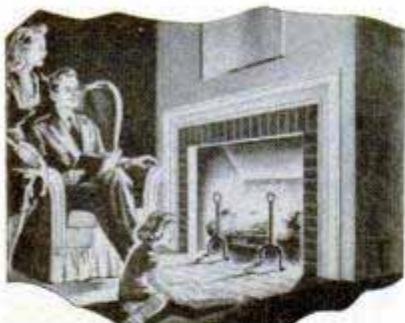
TELLS HOW TO BUILD YOUR FIREPLACE—Step by Step

- Foundation
- Steel heat-circulating form
- Cold and warm air ducts
- Chimney and flue construction
- Mantel or decorative front

ASK FOR BOOK  
"100 FIREPLACE IDEAS"

Beautiful fireplace designs modern and conventional—shows artistic use of available material.

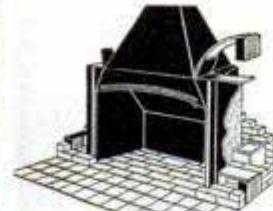
Enjoy circulating heat and the radiance of an open fire in your Home, Playroom, Cottage or Camp.



Foundation



Fireplace form set on foundation includes firebox, damper, down draft shelf and smoke dome.



Brick, stone or cement block can be used around the form.

Send free directions for building heat-circulating fireplace.  
 Send Book "100 Fireplace Ideas." Pocket size book, sent free.  
 Send larger book, 8½ x 11, beautifully illustrated, 25c.  
 Send outdoor fireplace folder with 10 beautiful designs Free.

Name \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_

Sold Through Leading Building Materials Dealers

**PRICE FIREPLACE HEATER & TANK CORP.**  
191 W. Austin Street, Buffalo 7, New York

service to make a gain-frequency test. We loosen the quick clamps at the receiving end of the channel and insert an attenuator in the guides. Then by means of a transducer and a flexible coaxial lead, we feed a test signal through the channel and check the output. This is to determine that the amount of amplification provided meets certain limits."

Newt added, "We service the stations late at night after television signs off. Reaching such points as Buckhorn and Mount Rose, Nev., where snow can drift 10 feet deep as early as October, would be next to impossible without the aid of Jeeps, Sno-Cats, and the latest vehicle to be developed, the Sno-Shu. This custom-made machine, with its cleated rubber treads, can cling stubbornly to the steepest grade without turning over."

Our feeling of meeting something too great to have sprung from mortal mind remained, and yet we realized that holding microwave down to earthly reality are these men who service the sky pathway, breathing life blood into the cold veins of power generators, receivers and transmitters and making a fantastic accomplishment believable to the average man. ★ ★ ★

## Hydraulic Tire Breaker Made From Aircraft Parts



If you've ever tried to break an automobile tire from its rim, you'll approve of a hydraulic breaker invented by an Air Force mechanic. A welded-steel framework rests on the tire, its wedge-shaped legs encircling the inner rim. Two thousand pounds of pressure is exerted on its center by an actuating cylinder salvaged from an F-47 landing gear. Pressure comes from a B-24's hydraulic accumulator and pump. A 24-volt auxiliary power unit activates the device. The force pops the tire from its rim.

# here's how — it cuts your fuel oil costs!



Scientific flame placement, as illustrated in the sectional view above, is a major factor in the extraordinary operating efficiency of the Timken Silent Automatic Wall-Flame Oil Burner, famous for fuel oil savings up to one gallon in every four used by ordinary burners.

**WALL-FLAME OIL BURNERS** are easily installed in warm air furnaces made of either cast-iron or steel. Advance-designed wall-flame heating method assures quiet, thrifty operation. Fits all types of boilers. Gas conversion burners, too.



## THE TIMKEN *Silent Automatic* **WALL-FLAME OIL BURNER** *turns every drop of oil into heat!*

The basically different, basically better Timken Silent Automatic Wall-Flame Oil Burner is experience-designed to cut fuel oil bills—boost heating efficiency! The natural-burning, high-intensity *wall-flame*—placed next to the heating plant walls where it does the most good—turns every drop of oil into useful heat. There's only *one* moving part (self-lubricated) for utmost dependability. And the burner is backed by more than 25 years of heating experience—as are the more than 93 models of Timken Silent Automatic heating equipment for oil, gas and coal. See your nearest Timken Silent Automatic Dealer now for a complete demonstration, or mail the coupon below for more information.

### TIMKEN *Silent Automatic* **HEAT**

**OIL • GAS • COAL**

TIMKEN SILENT AUTOMATIC DIVISION

The Timken-Detroit Axle Company • Jackson, Michigan  
The Timken-Detroit Axle Company of Canada, Ltd., Toronto, Ont.



MAIL THIS COUPON TODAY FOR ILLUSTRATED LITERATURE!

PM 4-35



Timken Silent Automatic, Jackson, Michigan  
Please mail illustrated literature. I am interested in:

(type of equipment)

NAME \_\_\_\_\_

STREET ADDRESS \_\_\_\_\_

CITY and STATE \_\_\_\_\_

If you are a student, please check here ( ) for special information.

(Continued from page 242)

with one or two exceptions, that can take such maneuvers without falling apart.

There is no need to have such soft springs. Comfort can be sacrificed for the safety of a stiffer suspension system.

Slow steering with absurd ratios of 25-30 to 1 would not be necessary if those supermush tires were not used.

We feel that a relaxing ride adds to the danger by lulling the driver to sleep. A few jounces would keep the driver alert and on the job.

Any sports car can corner better and faster than an American stock car. Also, the inevitable tire squeal will not be present and the sports car will not lean over so much.

Power steering is for people who are too lazy to spend a little effort steering and who should not be driving. What if the power steering failed? Cars are also too front-heavy today. An American car today will pitch up in the rear during heavy braking due to this fact.

Wire wheels just for sparkle at more than \$100 a set are stupid and a waste of money.

Emphasis should be on mechanical features first, and on styling second. American styling is nothing to brag about.

America has much to learn stylewise and engineeringwise from Europe. We admit that American cars may be the first to offer automatic light dimmers and refrigeration systems, but these are only accessories and do not have anything to do with the operation or beauty of the car.

Where engineering counts is performancewise. Why is it that European engineers can get 125 horsepower out of a 91-cubic-inch engine?

We present the following points against American cars in general:

One of the worst defects in American automobiles is the very shoddy workmanship. A very poor feature is the supermush suspension system which would be dangerous enough with standard 35-pounds-per-square-inch tires, let alone 24 and 22 doughnuts.... These automatic transmissions are about the biggest insult to a mechanically minded person that is possible.

The chrome trim is the biggest waste of money imaginable, for it serves no purpose whatsoever, and it seems to have been splashed about without any rhyme or reason as if to take up the entire chrome production.

We also fail to see how any reputable auto manufacturer can make or put his name on some of these so-called "sports

(Continued to page 256)



### CAN YOUR SCALP PASS THE FINGERNAIL TEST?

Don't give dandruff and dryness a chance to ruin the looks of your hair. Keep it neat and natural all day with Wildroot Cream-Oil. Made with the heart of Lanolin, so much like the natural oil of your skin! 29¢ 60¢ \$1

Get that successful look with America's largest selling Hair Tonic!





The walls of this charming dining room are paneled with warm Walnut Weldwood Plywood.

## Panel a Weldwood® Room *by yourself* for less than \$200!

Yes, Weldwood panels probably cost less than you think . . . and they'll be a cinch for *you* to install. They go right over new walls or old . . . quickly.

Choose from a variety of fine cabinet woods . . . rich walnut, soft-grained oak, lovely birch, golden Korina® and others. In a wide range of sizes.

Weldwood Plywood is beautifully decorative, permanent, crackless. It is *guaranteed* for the life of your home! And it harmonizes with either a traditional or modern setting . . . blends or contrasts with any color scheme.

And Weldwood walls are a tidy housekeeper's delight! They stay clean and fresh with a minimum of attention . . . grow even lovelier with age.

So visit any of our 60 United States Plywood or U.S.-Mengel distributing units from coast to coast for full details on Weldwood paneling. Or see your Weldwood Lumber Dealer today.



UNITED STATES PLYWOOD CORPORATION  
Box 61, New York 46, N. Y.

Enclosed find 10¢ for booklet, "Beautiful Wood for Beautiful Homes," showing ideas in full color for beautiful Weldwood paneled rooms.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

### Weldwood® Plywood

a product of

UNITED STATES PLYWOOD CORPORATION

World's Largest Plywood Organization

Branches in Principal Cities • Warehouses in  
Chief Trading Areas • Dealers Everywhere

We're sitting pretty...for petty cash!

## "Antiques" From a Modern Shop

(Continued from page 164)

as were the originals which were made in England in 1760, and are equipped with locks and handmade brass handles and escutcheons. The caddies are popular as containers for cigarettes, tobacco, cards, jewelry and other small articles. Works has put one of the larger caddies to a use few purchasers are likely to imitate: He made a wren house of it which—since the caddy retails for around \$25—makes it just about the most ritzy home a wren could find. "Something went wrong with that one," the maker explains.

One of the most complicated products of the shop is a hurricane candleholder which, together with its mouth-blown glass globe, stands over 16 inches high. Its stem and base, essentially the same as a conventional candlestick in form, fit together like a nut and bolt. Works does the threading with an old-time tap and screw-cutting box. He says that such a threaded joint is the only kind that can be drawn tightly together, yet can be taken apart at any time without difficulty. He turns base and stem individually with hand tools and lathe. Brass and glass parts are made by other manufacturers.

Here's the customary way he finishes the mahogany reproductions: First he applies stain to make the wood the color of 200-year-old mahogany. After the stain is dry he applies filler of the proper color, rubs off the excess, lets it dry thoroughly and sands it smooth. He sprays on finishing coats of clear lacquer and, when dry, hand rubs the finish to the desired sheen with lacquer-rubbing compound.

Here are some typical price tags: Octagonal tea caddy, \$19.75; oblong tea caddy, \$24.90; small mahogany tray, \$6.95; and an 18-inch round mahogany tray, \$16.75.

In Works' home are to be found reproductions that are worth even more, but which he never will offer for sale. These include experimental tea containers and other pieces made of cherry, rosewood, pine and other woods different from the materials used in the originals.

★ ★ ★

## Dial Shows Battery Condition

Connected to the battery terminals, an electrical instrument that mounts on the dashboard shows the battery condition and state of charge at all times. It tells the driver when the battery is taking a charge, holding its charge and how the voltage regulator and generator are working. It also shows the condition of the starter and the power consumed under starting load. Instrument does not draw power from battery.



\$110 worth of lawn  
furniture for only \$47\*  
built with my

## SKIL Home Shop Drill

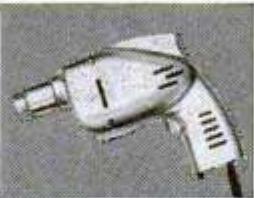
My SKIL Home Shop Drill made our yard the favorite summer spot for all the family. And I saved almost 60% on the lawn furniture I built with SKIL-Chart No. 112.

My SKIL Drill made fast work of drilling and countersinking all the holes for bolts, dowels and lacings. The SKIL Drill handles easily even in close quarters, because this drill is compact, light weight, perfectly balanced.

You'll also do sanding, polishing, buffing, brushing and grinding...get dozens of "bonus uses" ...with your SKIL Home Shop Drill and SKIL accessories. Start now to save time and work by using a SKIL Home Shop Drill for all your carpentry and hobby projects. And use the coupon now to order your SKIL-Chart No. 112.

### SKIL Home Shop Drill Model

**549**—The only  $\frac{1}{4}$ " drill of its power and price with preferred, sure-gripping geared chuck. Weighs only  $3\frac{1}{2}$  lbs., yet drills  $\frac{1}{4}$ " holes in steel,  $\frac{1}{2}$ " in hardwood. Priced at only \$23.25. Model 518 with popular hex-key chuck, only \$20.50.



\*For materials in 4 units shown. Costs vary locally. Tool prices subject to change without notice.

**SKIL**  
HOME SHOP TOOLS

Made Only By SKIL Corporation  
Formerly SKILSAW, Inc.  
5033 Elston Ave., Chicago 30, Ill.  
In Canada, Skiltools, Ltd.,  
3601 Dundas Street West  
Toronto 9, Ont.

SKIL Corporation, Home Shop Division, Dept. C-43  
5033 Elston Avenue, Chicago 30, Illinois

I enclose 10¢ in coin. Please mail SKIL-Chart No. 112.

Name \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

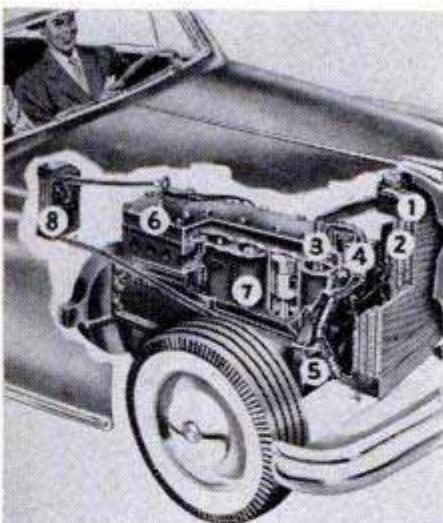
**Protect your cooling system now  
to guard against summer overheating**



Cooling system failure—on the New York Southern State Parkway last summer—stranded these motorists.

# **NEW DU PONT ANTI-RUST**

**and Water Pump Lubricant**  
**RETARDS RUST FORMATION, NEUTRALIZES CORROSION ACIDS**



**HERE'S WHERE** Du Pont Anti-Rust works in your car's cooling system to neutralize acid, retard rust and corrosion, lubricate moving parts.  
1. Radiator tanks. 2. Water tubes. 3. Thermostat. 4. Water pump. 5. Hose connections. 6. Cylinder head. 7. Cylinder wall. 8. Heater.

**Just pour it in the radiator, leave it in!**

Now, you can easily eliminate one hot-weather worry—failure of your car's cooling system. Most overheating is caused by clogging due to rust, and corrosive attack. New Du Pont Anti-Rust not only inhibits rust, but neutralizes acids and lubricates the water pump as well.

Best of all, liquid Du Pont Anti-Rust is simple to use. Just pour it in your radiator and forget it. It starts immediately to protect you against troublesome breakdowns and costly repairs. And Anti-Rust can't clog . . . is harmless to hose or metal parts. Get it at your service station or auto supply store—\$1.00 at most dealers.



Better Things for Better Living  
...through Chemistry



#### **DU PONT SPRING DRAIN-OUT:**



Ask at your garage or service station about this complete summer protection. The service includes 1. Draining out winter-worn anti-freeze. 2. Thoroughly cleaning out rust and scale with Du Pont Cooling System Cleanser. 3. Adding Du Pont Anti-Rust and Water Pump Lubricant. 4. Checking all cooling system parts.

**DU PONT COOLING SYSTEM CLEANSER**

**\$1,000.00 CASH**

## SYNCRO SANDER CONTEST

IT'S FUN! IT'S EASY!

NOTHING  
TO BUY!



**WIN**  
One of  
These  
**43**  
CASH  
PRIZES

1st Prize  
**\$500**  
2nd Prize  
**\$200**  
3rd Prize  
**\$100**  
40 Prizes  
**\$5 Each!**

\*  
Contest  
STARTS  
MARCH 1  
ENDS  
MAY 31, 1953

\*  
JUDGES  
WALT DURBAHN  
Master Craftsman,  
TV Star  
RUSSELL JOHNS  
Publisher  
HARRY J. HOBBS  
Publisher



**SYNCRO CORPORATION**

CONTEST DEPT. D-43

OXFORD, MICHIGAN, U. S. A.

Send FREE Contest Folder postpaid.

Name \_\_\_\_\_  
St. & No. \_\_\_\_\_  
City \_\_\_\_\_  
Zone \_\_\_\_\_ State \_\_\_\_\_



CIRCUIT No. 5 REGENERATIVE DETECTOR

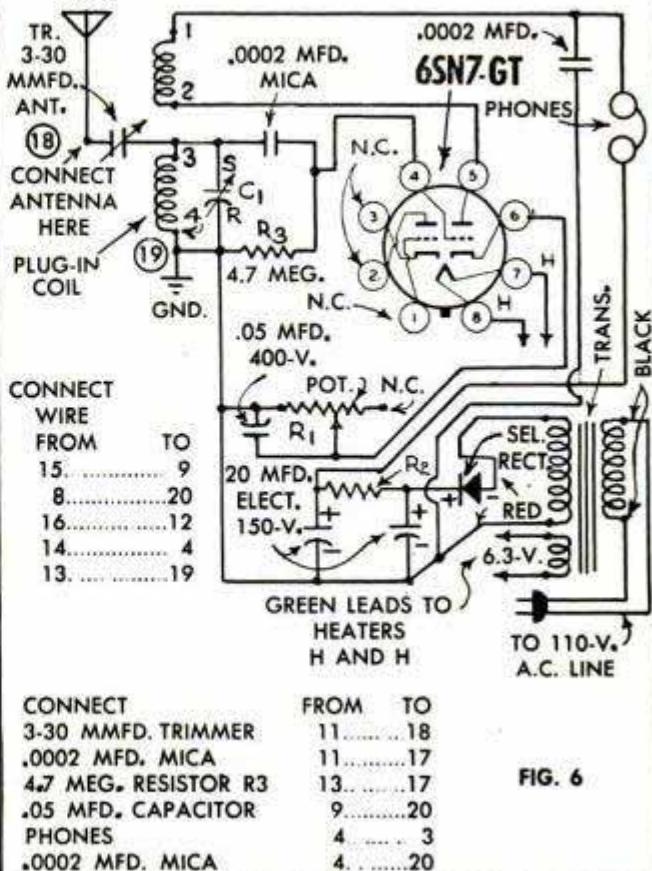


FIG. 6

## Six-in-One Radio Lab. Project For Beginners

(Continued from page 230)

They should be well insulated with friction tape to avoid any possibility of shock. Do not touch any clip or terminal after the line cord is plugged into the wall outlet. Always pull out the line-cord plug whenever you work on any circuit. The isolation transformer is a Stancor type PS-8415 which has a 125-volt secondary at 15 ma. (red leads) and a 6.3-volt, 0.6-amp. filament winding (green leads). Neither of these secondaries is center tapped. This transformer lists in parts-house catalogues for about \$1.70. The selenium rectifier is a standard 65-ma. type and costs about 80 cents. The potentiometer R1 is a Mallory midget-type, U-48 (taper No. 1) 500,000 ohms. The ICA 4-prong coil used is from a 2-coil ICA kit that sells for about \$1.96. Both of these broadcast-band coils are useful to beginners, but the one for the high-frequency end of the band (160-325 meters) covers the entire broadcast band with the variable capacitor (C1) specified. The other coil can be reserved for more advanced projects. No power-line switch is included in the simple foundation unit in order to keep the cost at a minimum; it would add nothing to performance. The variable C1

(Continued to page 254)

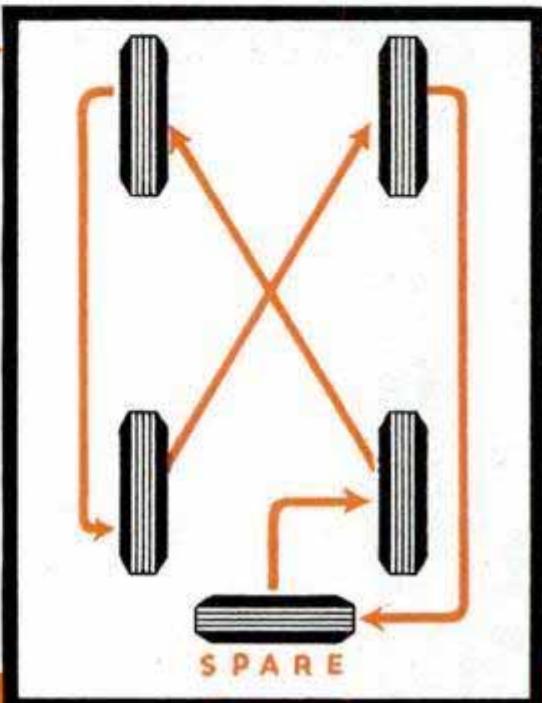


# Texaco Tips

## on car care

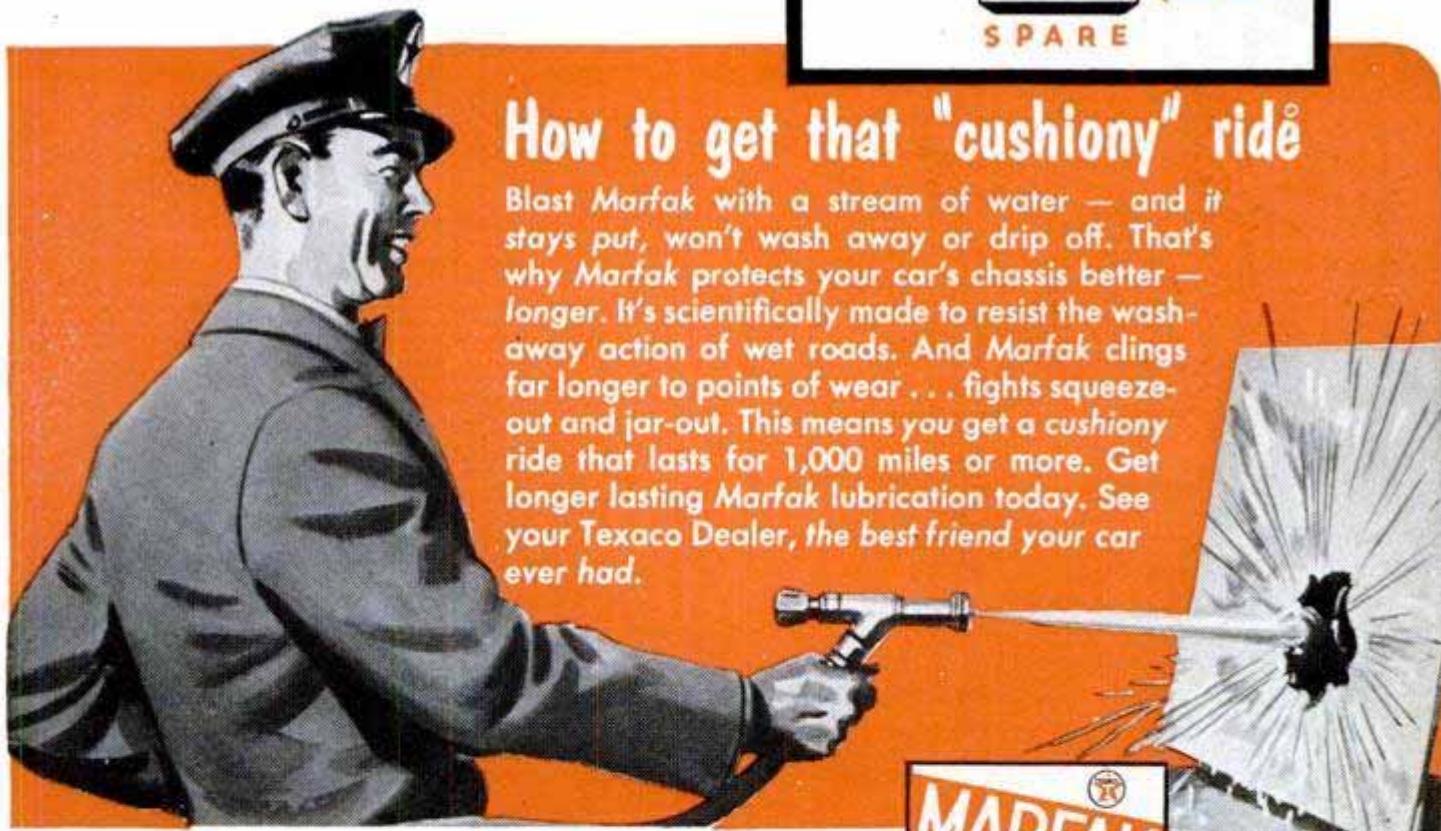
### How to get longer tire life

When your tires wear unevenly, they don't give you full service. To get maximum mileage from your tires, they should be inspected often and rotated. See your Texaco Dealer for a thorough tire check. He will inspect the treads for irregular wear. He will check for trouble-making cuts and breaks . . . and fill your tires to the proper pressure. He will rotate them for a nominal fee. This helps you enjoy more miles of carefree motoring.



### How to get that "cushiony" ride

Blast Marfak with a stream of water — and it stays put, won't wash away or drip off. That's why Marfak protects your car's chassis better — longer. It's scientifically made to resist the wash-away action of wet roads. And Marfak clings far longer to points of wear . . . fights squeeze-out and jar-out. This means you get a cushiony ride that lasts for 1,000 miles or more. Get longer lasting Marfak lubrication today. See your Texaco Dealer, the best friend your car ever had.



THAT "CUSHIONY" FEELING LASTS LONGER WITH

**MARFAK**  
Lubrication

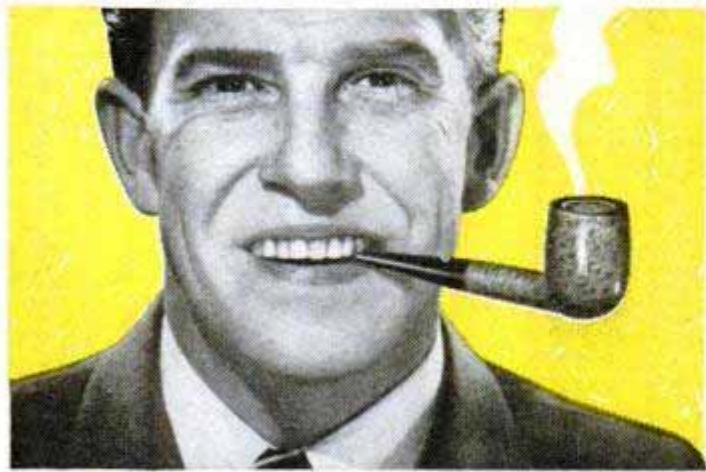
**THE TEXAS COMPANY**  
**TEXACO DEALERS IN ALL 48 STATES**

Texaco Products are also distributed in Canada and in Latin America

TUNE IN: Tuesday nights on television — the **TEXACO STAR THEATER** starring **MILTON BERLE**.

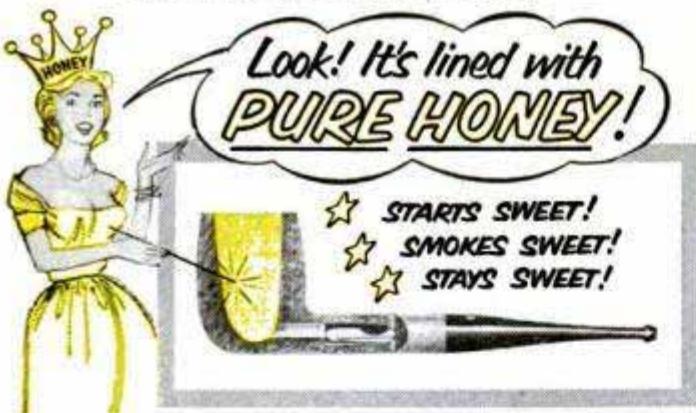
See newspaper for time and station.





## NO TONGUE-STING IN YELLO-BOLE PIPES

Let the Honey Girl show you why



Don't smoke a pipe that tortures your tongue! Light up a Yello-Bole...and feel the difference. Thanks to that pure honey lining...you can smoke your Yello-Bole to your tongue's content. No "Break-In Blues!" No stung tongue or irritated throat. Switch to a cool, sweet-smoking Yello-Bole...today!

# YELLO-BOLE

\$1.00 TO \$2.50

WIDE VARIETY OF SHAPES... IMPORTED BRIAR

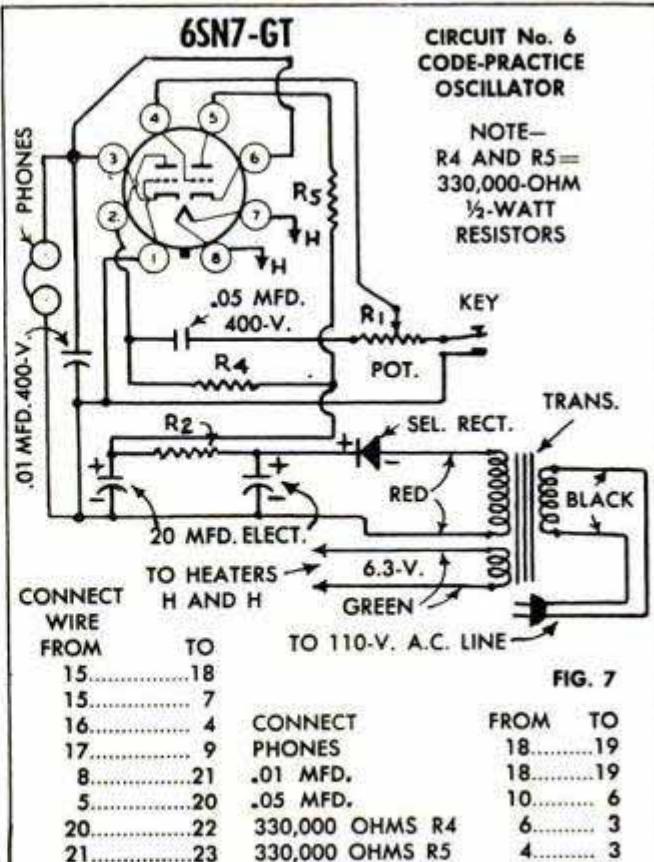
capacitor is a midget TRF single-gang 27-plate type tuning from 11.2 to 381.4 mmfd. This condenser is mounted on the foundation baseboard by means of two small angle brackets. Potentiometer R1 and the selenium rectifier are also mounted on larger angle brackets  $\frac{3}{4}$  in. wide.

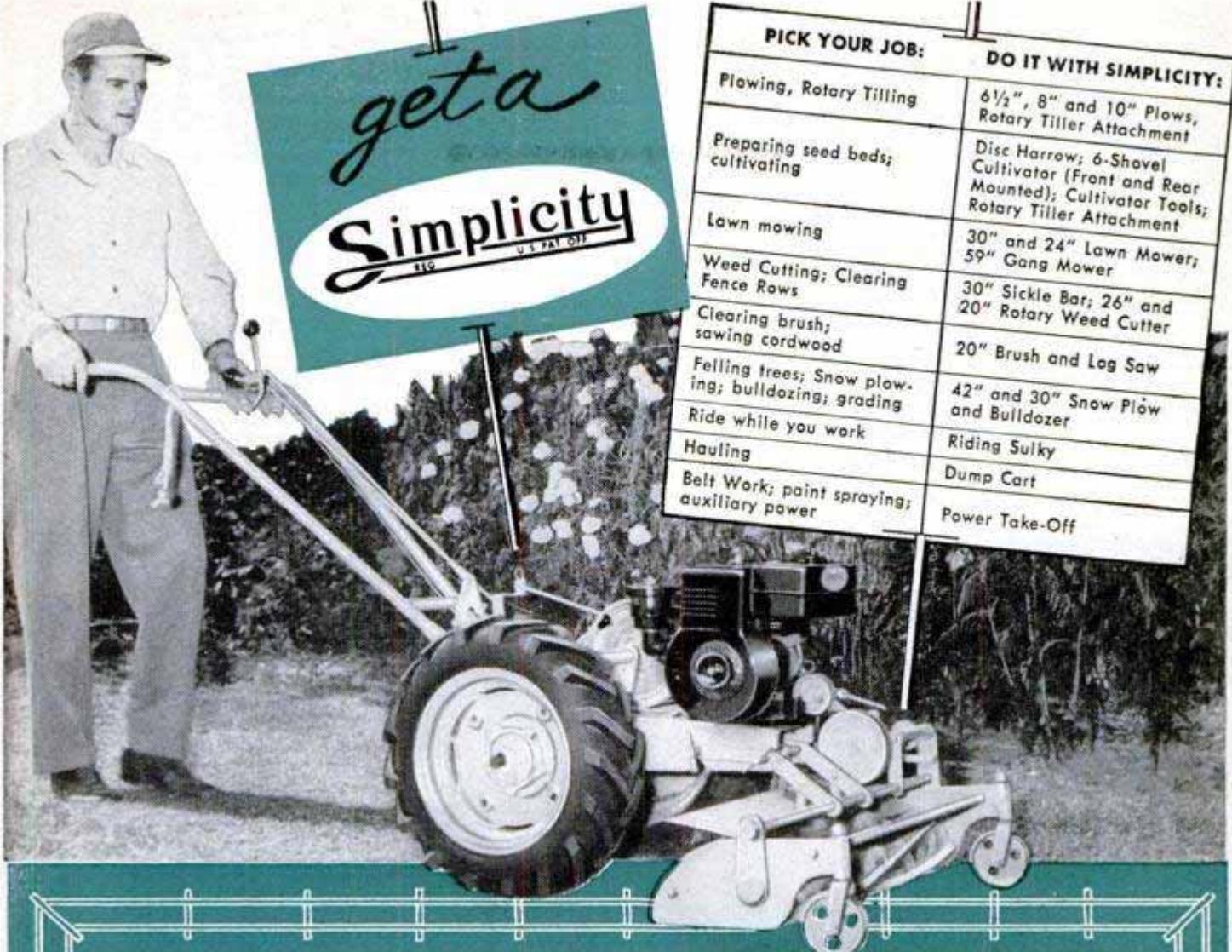
Label all terminals just as shown on the foundation unit, Figs. 1 and 1-A; small glue-backed labels may be used. It is necessary that each lug and clip be numbered exactly as shown so the subsequent circuits will be hooked up correctly. The various circuits numbered from 1 to 6 are shown schematically in Figs. 2 to 7. Under each circuit there are two columns of connection data. One is for connecting wires and the other is for parts, antenna and ground. The completed unit for the regenerative-detector receiver circuit No. 5 appears on page 229 and in photo A.

The last circuit in the series is a code-practice oscillator and requires the use of a key. The homemade one shown will answer the purpose; the wooden knob was obtained from a pot cover. The blade contacts the soldering-lug wood screw only when depressed. The headphones can be an inexpensive 2000-ohm pair available for about \$1.85. All parts specified can be obtained from any of the large radio-parts houses.

Circuit No. 1 was the earliest type of receiver and is comparable to a crystal set. The tube is connected as a diode and has

(Continued to page 260)





## Do more than 28 jobs in your Simplicity GARDEN WORKSHOP

REG. U.S. PAT. OFF.

Whatever the season, you'll find ways to save time and effort with Simplicity — America's Number 1 Garden Tractor. Now four great models offer practical, low-cost power for every garden workshop. The big 5 h.p. Model V has a new automotive type reverse. A Simplicity handles more than 28 different jobs with economical, easy-to-use attachments.

Ask your dealer to demonstrate Simplicity advantages on your own jobs! You'll agree that Simplicity is America's biggest garden tractor value!

**SIMPPLICITY MANUFACTURING COMPANY**  
5314 Spring Street Port Washington, Wis.

Write for FREE Catalog and Name of Your Nearest Dealer or See the Yellow Sections of Your Phone Book.

### Four Work-Saving Simplicity Models for 1953!

**2 HP Model L-1** — Ideal for most garden plots and large lawns. .... \$170.00\*

**3 HP Model M-1** — Plenty of power for big jobs... pulls 8-inch plow. .... \$248.00\*

**NEW 5 HP Model V** — Utility tractor for farms and large estates, with selective gear transmission and reverse. Special 10-inch moldboard plow with rolling coulter and rotary tiller attachments. .... \$298.00\*

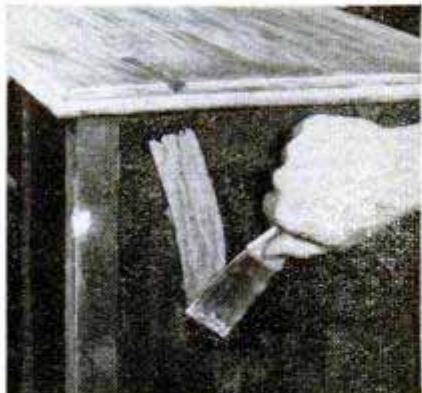
**NEW 2 HP Model J** — Built for the average yard. Self propelled. Special rotary attachments mow lawns, plow snow, cut weeds, cultivate gardens ..... \$99.50\*

\*Price F. O. B. Port Washington, Wis.; implements extra. Your Simplicity dealer will be happy to arrange convenient terms.

**America's No. 1 Garden Tractor Lists for as Little as**

**\$99.50**

# Hints on How to Refinish Furniture



**Step 1.** Remove old finish—quickly, easily, with fast-acting Strypeeze. Brush on, let it set . . . off comes the old finish. (hint: sprinkle sawdust over Strypeeze. "Roll off" sawdust, Strypeeze and old finish.)



**Step 2.** Fill all holes, nicks — permanently and simply with Savogran Wood Putty. Tools easily, won't shrink. Now, sand entire surface with 6/0 sandpaper. (For cracks in plaster, use Savogran Crack Filler. It's the original patented quick-hardening water putty.)



**Step 3.** Refinish—before you start, be sure brush is clean. Savogran Kwikeeze really cleans varnish brushes. Leaves no specks of old varnish, dirt in brush to mar finish. Apply stain, thinned shellac seal, then spar varnish or dull "rubbed effect" varnish in finishing.



# SAVOGRAN

PRODUCTS . . . at better paint & hardware stores  
Write for free helpful literature

SAVOGRAN CO., Dept. 31, 25 Huntington Ave., Boston 16, Mass.

(Continued from page 248)

cars." These cars are a hideous example of how poor American styling is. They are no more sports cars than a motorized baby carriage. The power-to-weight ratio is not what it should be for a competition car and the steering and suspension are very poor.

The so-called horsepower race is another useless thing. It does not take as much power to move some of the heavy trucks as is put into standard-production cars. It is the power-weight ratio that determines pickup, but this should not be attempted with bigger and more powerful engines in heavy modern cars. Instead, manufacturers should try to decrease the weight of car and keep the horsepower the same.

Another fallacy is that of streamlining. The tops of most cars are fairly streamlined, so why not the bottom also?

Most American cars seem to have been designed without regard for safety. There are many reflections from the dash, also many projections. There is a ledge back of the back seat from which hard and lethal objects may slide during an emergency stop. We are glad to see that at least one auto builder has made efforts for increased safety.

Many of the less-expensive English autos use a heavier gauge of steel in the bodies than the high-priced American cars have. These poor materials, combined with bad workmanship and inattention to details, greatly decrease the value of our cars. Steering wheels could be made with four spokes at right angles to each other and with thicker rims. Perhaps someday auto manufacturers will come to their senses and try to catch up to the going jobs of the '30's. Even the old Model-T is better in most ways than the modern car—pound for pound, dollar for dollar.

Why cannot some manufacturer bring back the old Model-A or some similar car and forget about the rolling living rooms? There would be a very good market for such a means of transportation. The reason American buyers get these Detroit monsters is that there is nothing else available in this country and they have to keep up with the Joneses next door. Our advice is: Buy a small foreign car and treat yourself to a fine car.

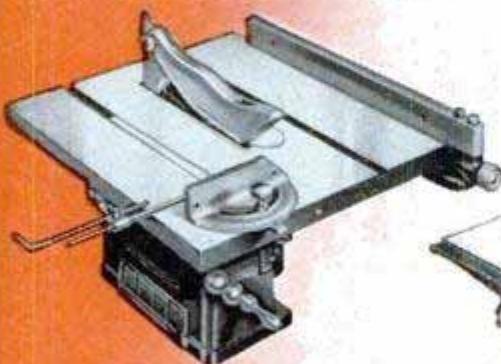
Wortham D. Davenport,  
John H. Willock,  
The Hill School,  
Pottstown, Pa.

## To the Editor:

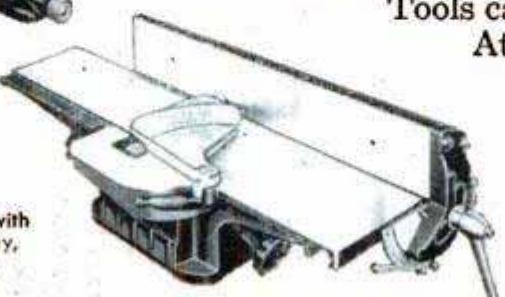
Generally speaking, I enjoyed the sections on cars until I arrived at "American

(Continued to page 294)

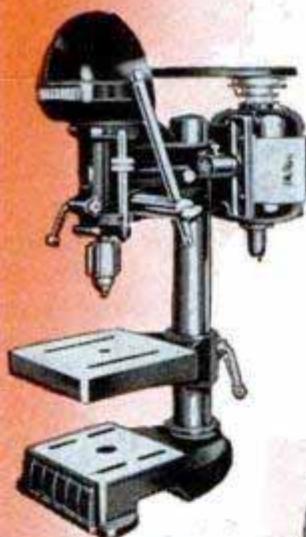
# You Can Own Any Of These Fine DELTA Tools FOR LESS THAN \$50!\*



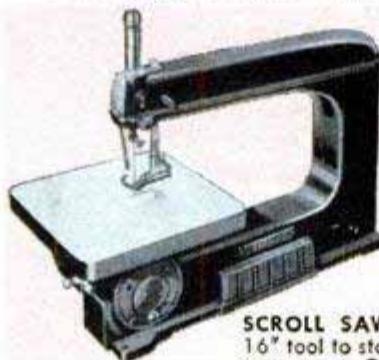
**CIRCULAR SAW**—8" tilting table saw with rip fence, miter gage, guard, arbor pulley, splitter, anti-kickback fingers and blade. Big capacity, less motor, a great value at \$41.50



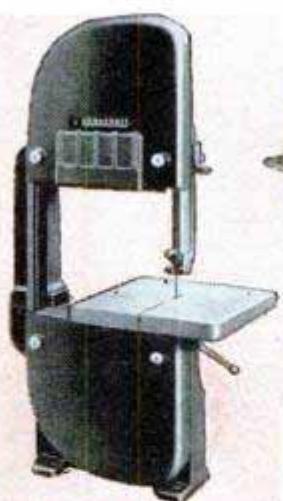
**JOINTER**—Planes any board up to 4" wide. Including fence, knives and safety guard—a fine finishing tool, less motor, for \$38.50



**DRILL PRESS**—Drill, mortise, rout, carve, shape and grind on this 11" drill press. With 1/2" Jacobs chuck spindle, belt and motor pulley, less motor, just.....\$48.95



**SCROLL SAW**—A fine 16" tool to start the youngsters. Cuts intricate curves. Including arbor pulley, three blades and pulley guard, less motor, \$39.50



**BAND SAW**—10" size, for curve or straight line cutting. With wheel guard, blade and arbor pulley, less motor.....\$46.95



**SANDER**—You can use it to sand, drill, grind and buff. 8 1/2" disk diameter, less motor and miter gage. \$13.50



**GRINDER**—A real asset for your workshop or garage. Buffing, polishing and grinding wheels at small extra cost. Includes motor, guards and tool rests.....\$39.95

Did you realize it costs so little to own a DELTA home workshop?

Any of these famous Delta Homecraft Power Tools can be yours for less than \$50\*. At these prices there's no need

to shop around—you can afford Delta quality.

These are standard Delta Homecraft tools with all the Delta quality features. Make this test: ask the professional woodworkers—they'll tell you that sooner or later you'll be satisfied with nothing but Delta. So, save money . . . start with Delta now!

Write for catalog: *Delta Power Tool Division, Rockwell Manufacturing Company, Pittsburgh 8, Pa.*

\*Motors and accessories extra.



See these tools at your Delta Dealer (listed under tools in your phone book), leading department stores . . . and at your IRHA store.

See the new Deltashop at your dealer's, too—the four most used tools in a single one-motor combination that takes up only a 3-foot square. Buy it a tool at a time, or the whole unit with floor stand, less motor, for only \$209.95

**DELTA** QUALITY POWER TOOLS  
Another Product of **Rockwell**



DELTA QUALITY MAKES THE DIFFERENCE



# LUMITE\*

## WINDOW Screening

### Won't Rust, Corrode or Stain



Costs **ONLY** 12¢-13¢ per sq. ft.

(Slightly higher west of the Rockies)

WRITE FOR FREE sample and descriptive folder  
... or visit your hardware or  
building supply store today.



# LUMITE\*

SARAN SCREENING

\*Registered Trade-mark

LUMITE  
DIVISION | Chicopee Mills, Inc., Dept. PM-31  
47 Worth Street, N. Y. 13, N. Y.

## UN's World Capitol

(Continued from page 104)

desk can tune into any hall and hear the speech in any translation he wants.

Suppose there's a back-and-forth debate going on instead of a speech. How will Sherry, sitting behind soundproof glass, follow from one speaker to another? Between every pair of seats at the conference table sits a mike. On his control console, the sound engineer has a pattern of finger switches laid out in the exact pattern of those mikes. Watching through the glass partition, he sees one man stop talking, another start. He switches off the mike nearest the first speaker, throws in the one nearest the second. Hence, an entire debate can be fed into the system with no danger of feedback from too many mikes.

Once in a while meetings are held outside UN headquarters where there are no electronic facilities. Rayburn Chestnutt's communications department solves this problem with tiny three-tube radio sets in plastic boxes. Each delegate hangs one around his neck, plugs in a pair of earphones, and he's all set. The sets will handle seven channels—one for each translation, plus the floor—and are good for half the loop diameter of the sending antenna, which is usually strung around the conference hall. A small, portable transmitter picks up and broadcasts the proceedings just as a full-size radio station would. It works like a charm, but the tiny radio sets are extremely popular. Four hundred have disappeared on their way to and from jobs.

Plenty of other things happen to Sherry's words as they pour from his lips. Down in a huge basement studio beneath the General Assembly they are piped into a recording room where one of 12 recorders preserves them on lacquer platters for permanent storage. Or they may go on magnetic tape via one of the 22 removable-cartridge machines for temporary preservation until they can be sent to the tremendous underground printing plant and set in type—or mimeographed along with some 1,500,000 other sheets that often pour from the mimeograph machines in a single day.

By the time George Sherry goes down to the subterranean garage and weaves his car up the labyrinth of ramps to surface viaducts, he's had a full day. So have most other UN employees. But the glittering edifices will not close down.

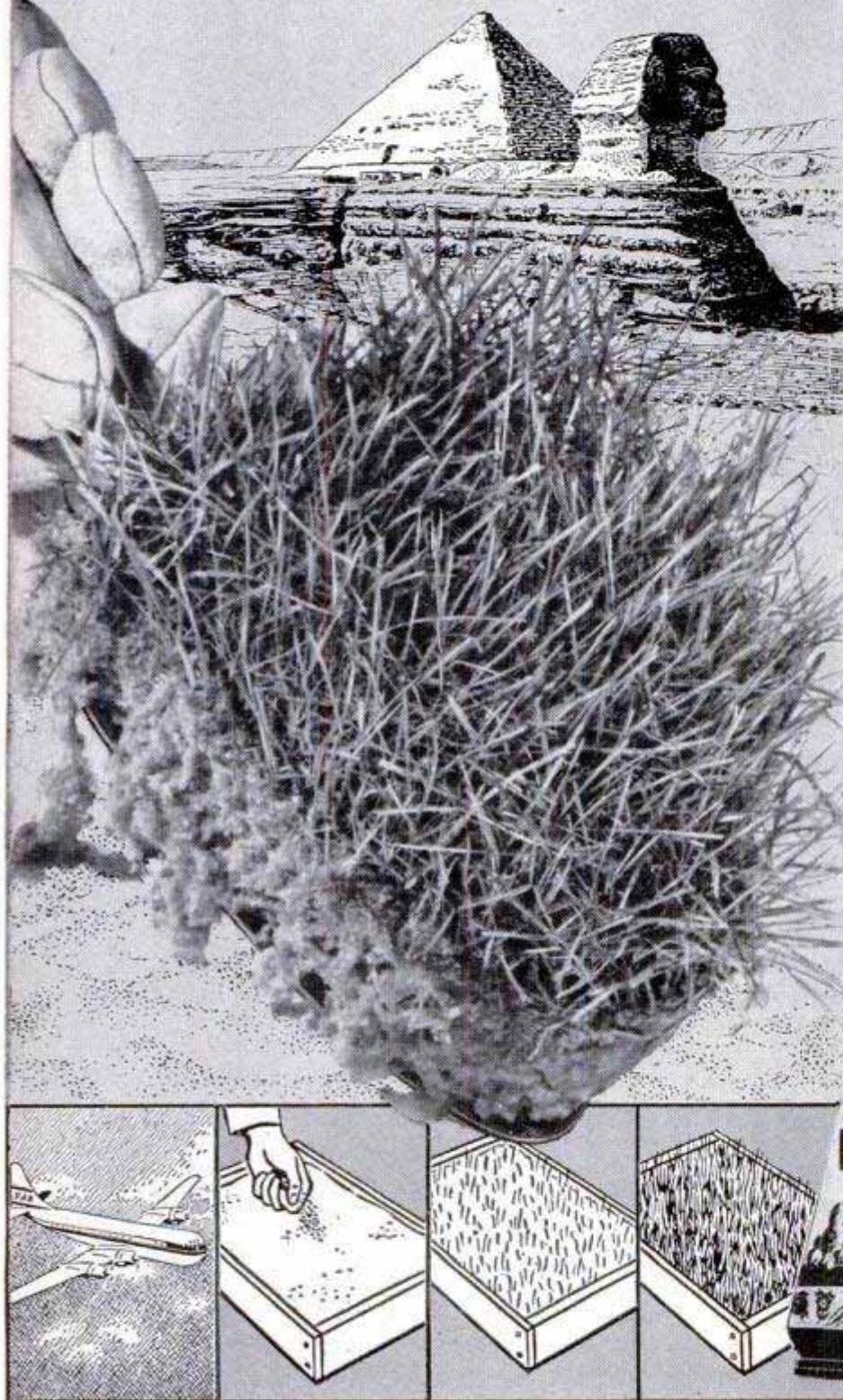
An army of cleaning and maintenance personnel moves in. The glass-walled buildings are ablaze with light. Sixty cleaning women and 130 porters keep things running. Fifteen miles of carpet in three-foot

(Continued to page 260)

**Proof!**

**VIGORO<sup>\*</sup> CAN GROW FINE LAWN GRASS**

*even in Sahara Desert sand!*

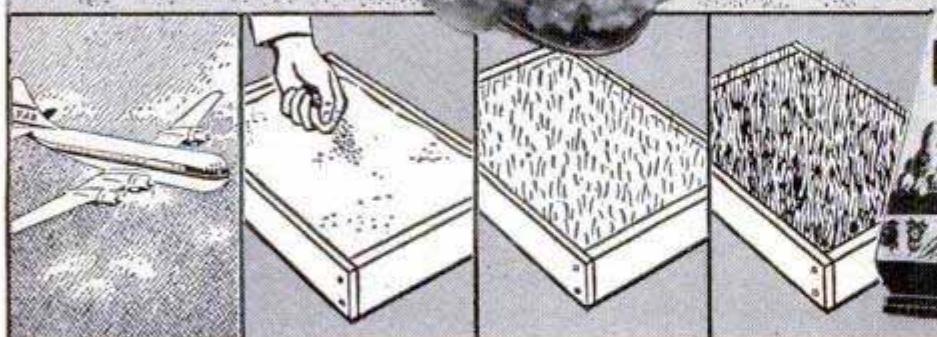


• Sand from the  
**Sahara Desert**, flown in by Pan American Air-ways for this test.

• We planted grass seed (new Merion variety) in this American Air-ways for this test.

• Vigoro goes to work! Soon tiny blades of grass appear... and Vigoro regularly.

• And the result! Thick, beautiful grass, as fine as might grow out of rich, black earth.



*New feeding test reveals basic secret of gardening success*

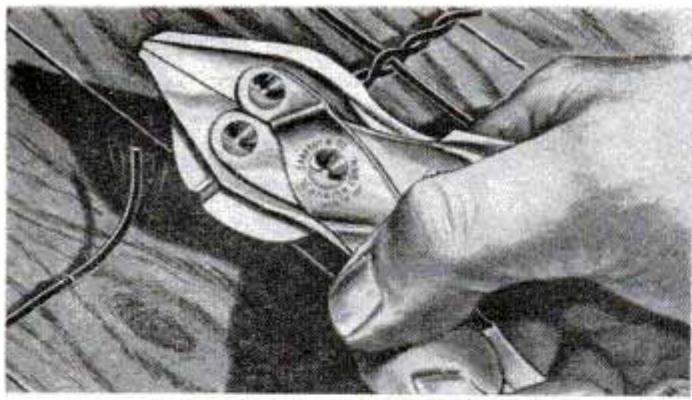
The thick, deep-rooted grass you see pictured here was actually grown in Sahara Desert sand—supplemented only by regular feedings of Vigoro. Here's conclusive proof that Vigoro provides every element grass needs to grow and thrive. With results like these in a sand test, you can imagine what Vigoro will do for grass grown in *real* lawn soil. No matter how poor or thin your soil may now be, Vigoro can make it rich in all the food elements lawn grass needs for fullest, finest growth. Apply 3 lbs. of Vigoro per 100 sq. ft.—see what a difference it makes on your lawn.

### The **VIGORO** Family of Gardening Aids!



- **VIGORO**
- instant VIGORO
- **End-o-Pest**
- **End-o-Weed**
- **End-o-Weed Crab Grass Killer**
- **End-o-Pest ARC**  
(Ant, Roach, Chigger killer)

\*Vigoro is the trademark for Swift & Company's complete balanced plant food.



"Buy the  
tool  
that does... **5 kinds of  
jobs well!**"

### The SARGENT "GRIP-SNIP"\*

- 1. CUTS WIRE EASILY**... outside cutters cut wire even when it tightly hugs a flat surface.
- 2. GRIPS LIKE A VISE**... a wrench-like grip that doesn't slip. Compound leverage multiplies power along entire length of jaws.
- 3. HOLDS NUTS LIKE A WRENCH**... powerful parallel jaws and extra leverage prevent rounding corners.
- 4. GETS INTO TIGHT SPOTS**... small nose of jaws permits working in close quarters.
- 5. UNKINKS WIRE**... run wire between jaws, from either end, to straighten or pull it.

★ ★ ★

Don't be without your Sargent "Grip-Snip" another day. See 4½, 5½, 6½ and 8-inch lengths at your hardware dealer. Mechanics, sportsmen, farmers and handymen call it their favorite. For further details, write Dept. 20D.

\* Trade Mark



**Sargent and Company**  
New York  
**New Haven, Conn.**  
Chicago

Builders Hardware and Fine Tools since 1864

strips must be vacuumed with the huge, castered five-horsepower cleaners. Telescoping platform-hoist towers—the biggest stretching upward for 75 feet—are broken out so cleaners can reach the highest points in the lobbies and dust the complex corners and cantilevered balconies. They will even reach the pinnacle of the General Assembly dome where burned-out lamps must be replaced. Four thousand wastebaskets must be emptied, 2000 Venetian blinds sponged, beautiful nickel-silver doors in the visitors' lobby must be steel-wooled with a special compound and thousands of square yards of bare floors scrubbed and resurfaced with nonskid preparation.

As for all those windows, a crew of 14 window cleaners started working when the buildings were completed. They haven't stopped yet, for as soon as they've made one round, clinging by safety belts to the glass-sided Secretariat or reaching from telescoping towers to squeegee down the vast crystal expanses of the General Assembly end walls, it's time to begin again.

And when the rising sun's reflection is bounced clear over Brooklyn by the huge mirror of glass on the east face of the Secretariat, the daytime UN army is on its way back to muss things up again for the night gang of cleaners.

But for all the frustrating cycles both in the conference rooms and in the area around them, almost any UN employee will agree with architect Harrison—that he and his staff of designers and engineers from dozens of countries have turned out one of the best workshops in the world. ★ ★ ★

### Six-in-One Radio Lab. Project For Beginners

(Continued from page 254)

similar properties. The type 6SN7-GT tube is used in all six circuits. Now, having strained your ears to listen to a diode receiver, try circuit No. 2 which has increased volume, due to a stage of audio amplification. Circuit No. 3 dispenses with the diode detector and uses a grid-leak detector. In this circuit a third tube element (the plate) is used. In Fig. 4 another detector known as a power detector is employed. This type of detector is also used in Fig. 5. For all receiver circuits, use a good outdoor antenna and insulated headphones with inside terminals. A good ground is important; it can be made on a cold-water pipe or metal rod driven into the earth. Detailed student material list R-418 is available from Popular Mechanics Radio and Electronics department upon receipt of ordinary letter postage.

★ ★ ★

**RELIEVES  
HEADACHE  
NEURALGIA  
NEURITIS PAIN**

**FAST**



**Here's Why...**

Anacin® is like a doctor's prescription. That is, Anacin contains not one but a combination of medically proved active ingredients. Anacin is specially compounded to give FAST, LONG LASTING relief. Don't wait. Buy Anacin today.

**SHEET METAL BRAKES**

Angles, flanges, Pittsburgh locks, 24 G. steel, heavier aluminum. Cam locking, mount on bench, truck or floor stand. Truss braced-steel. Express collect, 30", 65 lbs., \$28.50; 36", 75 lbs., \$33.00.

IRON BENDER forms hooks, angles, eyelets, etc. Capacity  $\frac{1}{4}$  x 2", 5/16 x 1 1/2". 10 parts, all steel, express collect, 59.50.

30" CURVE FORMER. Forms straight and tapering pipes 2" to 2 ft. in diameter. 20 gauge, express collect, \$10.50. (Immediate delivery. Order cash or C.O.D., or send for folder.)

VYKE BRAKE CO., P-3016 Leavenworth, Omaha 5, Nebr.



**Clark EXPANSIVE BIT**

**CUTS BETTER • COSTS LESS!**

Accurate, fast; cuts smooth holes in hard or soft wood. Chrome vanadium steel blades, all chrome body. No. 250,  $\frac{1}{2}$ "-1 1/2", \$1.89; No. 251,  $\frac{7}{8}$ "-3", \$2.19. GUARANTEED. At your dealer or write Dept. PM4

ROBERT H. CLARK COMPANY • Beverly Hills, California

**FLOODLIGHT!**

**\$4.95**  
less battery



It shoots a brilliant, 800-ft. spotlight—a widespread floodlight! It's sturdy, it's economical, it's so very handy! Don't be without one. Uses 6 V. battery. See your dealer.

DELTA ELECTRIC CO.  
Marion, Indiana

**SPOTLIGHT!**

**Delta  
POWERlite  
2-LITE ELECTRIC LANTERN**

# Hear What You're Missing

Get a

## hallicrafters



Enjoy the thrills of short-wave at down to earth prices. Now, for no more than you'd expect to pay for an ordinary radio, you hear regular broadcasts plus London, Paris, Moscow—ships at sea, aircraft and police calls—amateur broadcasts, emergency frequencies—and much more.

These are radios made by Hallicrafters, for years the leading manufacturer of precision communications equipment for the armed services, and for years the favorite of America's ham operators. Write for FREE information on the Hallicrafters line of outstanding receivers and transmitters.



**HALLICRAFTERS  
MODEL S-53A—Only \$89.95**

## hallicrafters

*World's Leading Manufacturer of Precision Radio Communications Equipment for the Armed Forces*

Hallicrafters, Dept. PM-43, 4401 W. Fifth Avenue  
Chicago 24, Illinois

Please send me complete information on Hallicrafters Short Wave.

Name.....

Address.....

City..... State.....

# WEEGEE'S SHORTCUTS

## TO PRIZE WINNING PHOTOFLASH PICTURES

### #2 . . . Photographing Children BY WEEGEE

Every photographer is entitled to one pet peeve. Mine is baby pictures. They all look alike—stiff and mechanical like puppets on a string. Yet often hours and even days are wasted posing baby. And it's so unnecessary. When shooting baby pictures, I make a schedule of the child's routine.

Using the schedule, I know when I can take natural looking feeding pictures, realistic bath shots, and true-to-life outdoor photos. If you stick to the baby's regular schedule, every child is enough of a ham to give you all the cute photos you want. What's more, the schedule enables you to plan your shots, and get the effects you want without wasting film or time posing artificially.

There's more about photographing babies in my new booklet **WEEGEE'S SECRETS OF SHOOTING WITH PHOTOFLASH**. This 64 page booklet is not sold at any store. But you can get a copy by sending 25¢ and the wrapper from a carton of Westinghouse Photoflash Bulbs to Westinghouse.

Here is another point to keep in mind, whether you own a box, candid or press camera. In 20 years I've tried all brands of flash bulbs. And you just can't beat Westinghouse bulbs for dependability. I shot all of my new book — **NAKED HOLLYWOOD** with Westinghouse Flash Bulbs and never found a single dud. Try a carton of Westinghouse bulbs on my say so. You won't be sorry.

Next month I'll tell you how I shoot parties and weddings.



**YOURS FOR A  
WESTINGHOUSE FLASH BULB  
CARTON WRAPPER AND 25¢**

#### PARTIAL LIST OF CONTENTS

- Photographing children
- Putting "Life" into party pictures
- Putting Character into portraits
- Drama in news photographs
- Selling your pictures
- Photographer's place at a fire

**YOU CAN BE SURE... IF IT'S Westinghouse**

THIS 64 PAGE BOOKLET CANNOT BE BOUGHT IN ANY STORE.  
YOU CAN GET YOUR COPY ONLY WITH THIS COUPON.

WESTINGHOUSE LAMP DIVISION, DEPT. PM-4  
Bloomfield, New Jersey.

Rush my copy of **WEEGEE'S SECRETS OF SHOOTING WITH PHOTOFLASH**. I am enclosing the wrapper from a carton of Westinghouse flash bulbs, and 25¢ to cover postage and handling.

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

## The Owners Report on the Ford Six

(Continued from page 142)

acceleration to rest the right leg on long trips, he said.

A bookkeeper of Madison, N. J., wrote: "The dash controls should all work in the same direction. All of them pull out except the wiper and it turns, making it easy to pull that knob off."

A truck driver of The Dalles, Ore., wants better-built bodies, better-fitting doors, overhead valves and fuel-injection.

An assistant engineering professor at the University of Illinois suggested the following improvements: The accelerator pedal should be set at a more comfortable angle. The steering mechanism should be redesigned. It should be possible to start the engine with Fordomatic in "park" position. The defroster should be active over the entire length of the windshield and should deliver enough air to keep the rear window clear.

"More soundproofing in body construction would be desirable. The undercoat helps some but not enough," wrote a Salina, Kans., farmer.

"I find the dealer gives you a good deal but not much service on the new Ford," was the opinion of a Louisville, Ky., housewife. (The survey showed 30.5 percent of the Ford owners rated their dealer service excellent, 32 percent good, 25.5 average and 12 percent poor.)

Owners gave a high over-all rating to the

(Continued to page 264)

Engine is started by turning key with left hand, a feature Clymer feels is awkward for right handers





## BUILD YOUR OWN Heathkit TEST EQUIPMENT

Heathkits form a complete line of electronic testing and measuring equipment for hobbyists, radio and TV servicing, appliance repair, laboratory research, and engineering development of all kinds. They are completely engineered quality instruments supplied unassembled (in kit form).

Heathkits are both easy and fun to build! All punching, forming, and painting has been done for you—you get only highest quality components—and the complete, detailed instruction manual tells exactly how to assemble and use the kit. Put them together yourself and eliminate expensive construction costs—and you learn while building.

Write for free catalog today!

**HEATH COMPANY**  
BENTON HARBOR 17,  
MICHIGAN



## MAGNETS 225<sup>lb</sup> PULL

GENUINE ALNICO—NEVER WEAKENS

**AMAZING, PERMANENT MAGNETS—WILL NOT WEAKEN! NON-ELECTRIC**  
Retrieve guns, tackle, tools and other steel items from lake, river, plating tanks, drains or other hard-to-reach spots. Recover drills, taps, etc. from sweeping. Clear alley of harmful tacks, nails. Many other uses. Pays for itself quickly. GUARANTEED. Try any magnet one week. Money refunded if you are not well pleased.  
No. M-725 (Weighs 54 oz.) Has pull of 225 lbs. on steel block. \$15.00  
No. M-675 (Weighs 49 oz.) Has pull of 175 lbs. on steel block. \$10.50  
No. M-650 (Weighs 41 oz.) Has pull of 150 lbs. on steel block. \$8.50  
No. M-30 Hobbyist assortment of six small magnets. \$1.50  
Send Money Order or Check. We pay postage. No C.O.D.'s.  
**MIAMI MAGNET COMPANY, 3240 N. W. 27th Ave., Miami 42, Fla.**

## OUTBOARD OWNERS GET THIS CATALOG!



The FREE Michigan Wheel outboard catalog for 1953—the outboarder's Bible—tells how to get better general-use performance from your outboard motor—unmatched speed on racing and fast runabouts with motors of  $7\frac{1}{2}$  hp and larger. Easily understood recommendations enable you to choose a propeller that is virtually custom engineered to your particular motor, boat and load. Write for your free copy now. Michigan Wheel Co., Dept. P-14, Grand Rapids, Mich.

## CONVERT HAND MOWERS to POWER MOWERS

Takes less than 3 hours

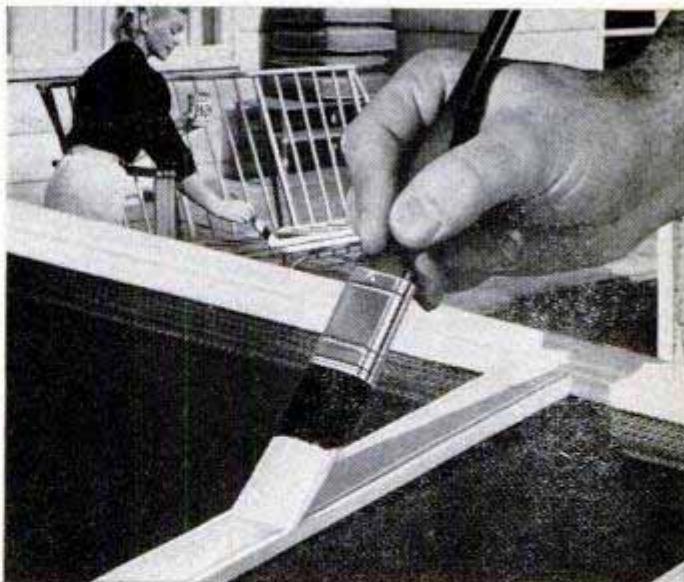
The Handy-Dandy Lawn Mower Kit fits any hand mower from the 16 to the 20 inch size. Complete with all necessary parts. Kits can be purchased separately, complete with engines or complete with Pennsylvania mower.



Also manufacturers of complete power mowers and garden cultivators, both reel and whirl type power mowers, with Leaf Mulcher and Snow Sweep.

**LE CLAIRE MFG. CO., Le Claire, Iowa, Dept. PM**

## POINTERS FOR HOME PAINTERS

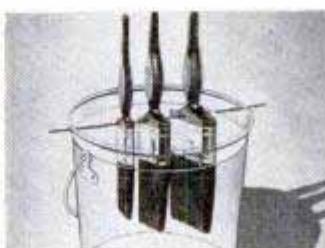


**How to improve your paint jobs...  
make your brushes last longer**



Start in corners of walls, ceilings and floors, and paint away from them. Use a strong stroke and work steadily so paint doesn't set before adjoining strip can be applied.

Don't let your brush "fish-tail" (see insert) by painting narrow or round surfaces with a large brush. Use small brush—one designed for the job—bristled with nylon.



Clean brushes with thinner after daily use. Suspend brush in thinner overnight. Bristle tips should not touch bottom of can. Work out thinner before painting again.

When you store brushes for longer periods, clean thoroughly and wrap securely in the manner shown here. Brushes stay in better condition when kept in shape.

## For best results use NYLON PAINT BRUSHES

JOB AFTER JOB, you'll get best results with a well-tipped nylon paint brush. Durable Du Pont nylon bristles paint smoother . . . are clean and sanitary . . . never get brittle . . . don't break off even under the roughest treatment. And nylon bristles last from 3 to 5 times longer than ordinary bristles. Leading manufacturers make nylon paint brushes in all types and sizes. Look for the name NYLON on the handle. Be sure to pick the size brush designed for the job . . . and demand Du Pont nylon bristles.

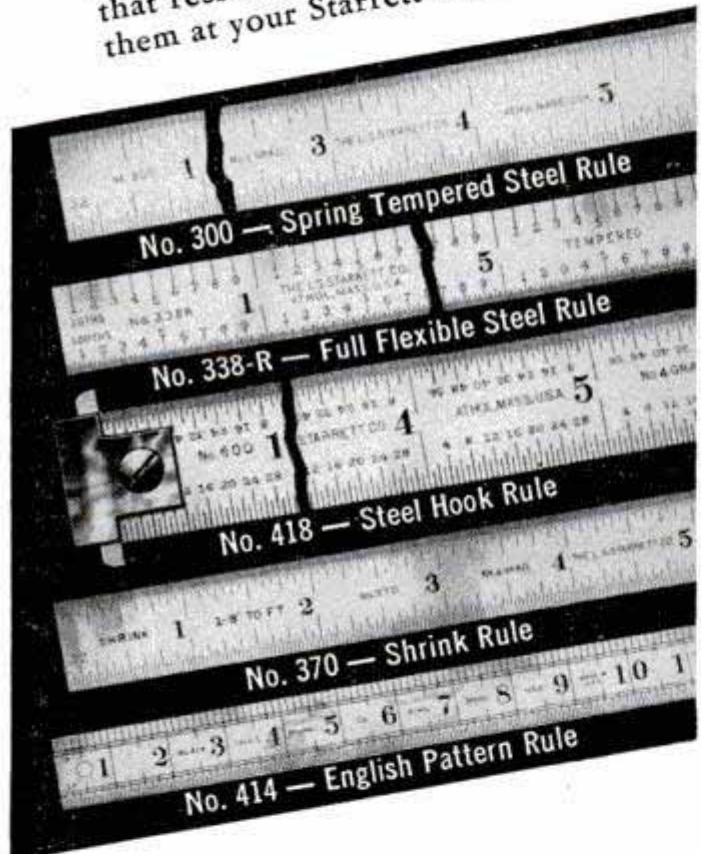


Better Things for Better Living  
...through Chemistry

The best brushes have  
**DU PONT NYLON  
BRISTLES**

# Starrett STEEL RULES

Whatever your need or preference, you'll find Starrett makes precisely the rule you need . . . lengths from  $\frac{1}{4}$ " to 72" and in a wide choice of widths, thicknesses and graduations. Light, flexible or semi-flexible steel rules, stainless steel rules, hook rules, shrink rules . . . all with distinctive, easy to read, machine divided graduations that resist wear, eliminate errors. See them at your Starrett Distributor's.



#### SEND FOR IT — ONLY 10¢

Starrett "Tools and Rules" Book  
50 page booklet shows the right tools for any precision measuring job. 100 pictures plus helpful reference tables. Send only one dime. Address Dept. AP.

**THE L. S. STARRETT COMPANY • ATHOL, MASS., U.S.A.**



**Starrett**  
TRADE MARK  
REG U.S. PAT OFF

SINCE 1880  
WORLD'S GREATEST TOOLMAKERS

MECHANICS' HAND MEASURING TOOLS AND PRECISION INSTRUMENTS  
DIAL INDICATORS • STEEL TAPES • PRECISION GROUND FLAT STOCK  
HACKSAWS, BAND SAWS and BAND KNIVES

Ford, as follows: Excellent, 51 percent; good, 37.5 percent; average, 10 percent, and poor, 1.5 percent.

One interesting reply came from a San Diego, Calif., production scheduler in response to the question, "What were your main reasons for buying a Ford?" He wrote: "Because Ford already had the V8

## 1953 FORD SPECIFICATIONS

### ENGINE

Type	8-cyl., L-head	Six
Bore and stroke	3.19 in. x 3.75 in.	3.56 in. x 3.60 in.
Piston displacement	239.4 cu. in.	215.3 cu. in.
Brake horsepower	110 at 3800 r.p.m.	101 at 3500 r.p.m.
Compression ratio	7.2:1	7.0:1
Transmission	3-speed conventional. Overdrive unit optional on all models.	Fordomatic drive optional on all models.

### CAPACITIES

Oil	4 qt. (5 qt. with filter) all models
Water	22 qt. (23 qt. with heater)
Gasoline	17 gal. (16 qt. with heater)

### GENERAL

Steering ratio (over-all)	26.3:1
Steering wheel, lock to lock	4½ turns
Turning diameter	40 ft. (outside)
Brakes	Conventional hydraulic with riveted linings
Tire size	6.00x16 Mainline; 6.70x15 Customline
Recommended pressures	Mainline: 28 lb. front, 25 lb. rear; Customline 25 lb. front, 23 lb. rear
Shipping weight (4-door sedan)	3193 lb. 3115 lb.
Wheelbase	115 in.
Tread, front	58 in.
Tread, rear	56 in.
Height, over-all (4-door, unladen)	62.3 in.
Width, over-all (4-door)	73.2 in. Mainline; 73.9 in. Customline
Length, over-all (4-door)	197.8 in.
Road clearance	8.1 in.

### INTERIOR DIMENSIONS

Front-seat width	58.9 in.
Rear-seat width	58.9 in.
Headroom, front	35.4 in.
Headroom, rear	34.2 in.
Legroom, front	42.8 in.
Legroom, rear	41.5 in.

and had just completed a change-over on the OHV 6, so they weren't likely to make another major change and leave me holding the bag."

**And now for my own test of the 1953 Ford:** In 1951 we covered the Ford V8 model, so we selected the overhead-valve Six for our 1953 test. I drove the 1953 Customline Six Fordor sedan with Fordomatic transmission 740 miles from Los Angeles to Fresno over the Ridge Route and returned over Pacheco Pass via the coast route. The mileage included off-highway tests on back roads and trails. Our deadline made it necessary to survey owners of 1952 models, while my test was on the 1953 model. There is no basic difference

(Continued to page 266)

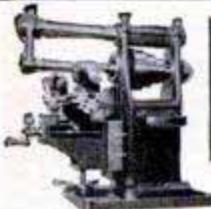
# THE 1953 Indian BRAVE

## Low in Price — High in Performance



Ride the 1953 Indian Brave!  
A Husky, Man-Sized Motorcycle in the  
Lightweight Field!  
Big Rugged 4 cycle Power Plant!  
Pep, Performance, -and - Low Cost!

SEE YOUR LOCAL INDIAN DEALER OR WRITE BOX BPM  
THE INDIAN CO. — SPRINGFIELD, MASS.



**BUILD**  
YOUR OWN  
MACHINE TOOLS  
CASTINGS - DRAWINGS



Catalog with complete construction drawings of this No. 2 Bench Miller or six inch crank shaper 25 cents per set postpaid or send one dollar for drawings of shaper, three millers and three lathes. Refund on castings order.

POOTATUCK CORPORATION, 100 Sammis Pl., Stratford, Conn.

Make Money Selling Eshelman Power Mowers Riding Tractors & Rotary Tillers	RAKES PLOWS CULTIVATES HARROWS HAULS SPRAYS SAWS DOZER MOWS CUTS ROLLS TILLS SNOW PLOW	FOR Better LAWNS And GARDENS	<b>ESHELMAN</b>  Also WALKING TRACTORS LOW AS \$95	Women Can Operate It. Free Catalog. Write nearest branch: ESHELMAN CO., Dept. T-25 119 Light St., Balto. 2, Md. 333 N. Michigan Ave., Chicago - 1, Ill. 105 Lake St., Reno, Nev.
---	--	------------------------------------	--	--

## HOW MANY TOOLS DOES A HANDYMAN NEED?

HERE'S A  
WHOLE  
TOOL KIT  
IN  
ONE  
TOOL!



No. 10-W  
\$2.60

**VISE-GRIP**  
WRENCH

You need fewer tools, get far more done, when you use a Vise-Grip Wrench! Locks to any size work with Ton-Grip. Won't slip! Turns, twists, pulls, bends, holds, ratchets, cuts. A Super-Pliers, Locking Wrench, Toggle Press, and many more — in 1 trim tool! 7" and 10", only \$1.85 to \$2.60, at your dealer.

Manufactured Only By  
PETERSEN MFG. CO., Dept. M-4, DeWitt, Nebr.

HOT SPARK! HIGH SPEED!

NIEHOFF

**NIE-TRON**

Super Heavy Duty Coil

Guaranteed for 100,000 miles

Replaces any coil on any car produced in the past 5 years without changing condenser or mounting brackets!



**UP MOTOR ENERGY**  
with Plus-Built

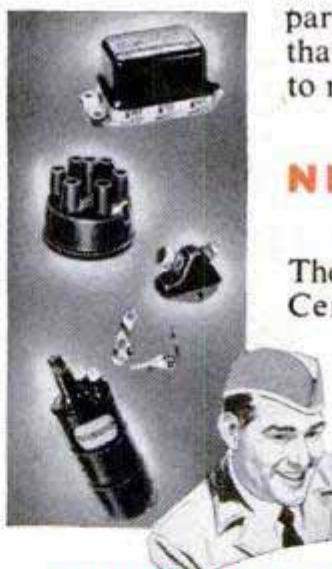
**NIEHOFF**

Warranted

**IGNITION PARTS**

—the parts master mechanics install in their own cars

Discover the difference these units can make in restoring your tired motor to NEW-MOTOR efficiency. Precision built to fit all popular makes of cars, trucks, buses, Niehoff parts carry that extra wallop that boosts motor energy to racing performance.



**See Your Nearby  
NIEHOFF DEALER**

for a tune-up — NOW

There are more than 42,000 Certified Niehoff Dealers in the U.S.—one near you. Make him your friend. He knows ignition and he'll treat you right. Look for the red, white & blue Niehoff sign.

WHEN NEW IGNITION PARTS ARE NEEDED,  
REPLACE WITH PLUS-BUILT NIEHOFF PARTS

New Panoramic Folder **FREE**

MAIL COUPON NOW

C. E. NIEHOFF & CO.

4925 Lawrence Ave., Chicago 30, Ill.

I'd like free illustrated folder giving details on Niehoff Ignition

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



**Take The Monroe**

# 30-DAY FREE RIDE!



**Prove Your Car Rides  
Better Than New with**

## MONRO-MATIC

### SHOCK ABSORBERS

If your car rides rough, shows uneven tire wear, is hard to steer on curves, chances are your shock absorbers need replacing . . . 2 out of 5 cars need new shocks. Monro-Matic shocks give you a smoother, safer ride on any road — longer car life — increased tire mileage. If not convinced in 30 days Monro-Matics make your car ride better than new, your money refunded. See your Monroe dealer today!

### Send 10¢ FOR NEW SHOCK ABSORBER MANUAL

Informative, instructive, tells the right shock for your car. Detailed instructions for removing old worn shocks, installing new. Send only a dime to cover handling cost.



between the two, but there are several '53 refinements.

Over winding roads and back trails I found the ride in the 1953 Ford superior to previous models and a pleasure to handle at any speed. By increased front-wheel vertical travel and redesigned rubber-compression bumpers, front-end road shock is tremendously reduced. Springs are now tailored to the weight of each model for best riding comfort. There is very little road bounce.

The 101-horsepower over-head-valve six-cylinder engine of 215.3-cubic-inch displacement which Ford introduced in 1952 is a modern, well-engineered unit, with 7.01:1 compression ratio and 24 cubic inches less displacement than the 110-horsepower V8 engine.

The engine is economical. The Six will out-accelerate the V8 model up to about 60 miles per hour and has almost as high top speed. It really will get down and lug better at slow speed than the V8. The engine has great low-speed pulling power. Although it virtually is a "square" engine—and it is the long-time conception that only a long-stroke engine will get down and lug—on my 32-percent test hill I found the Six has good torque and with wide-open throttle would "hang on" tenaciously at 10 miles per hour in low range.

The engine is smooth and has little vibration; in fact, above 20 miles per hour you can hardly tell that the smooth flow of power is coming from a 6 instead of a V8. Top speed by speedometer (which is fast by about 6 percent) is 90 to 92 miles per hour.

Regular gas was satisfactory and I found the Six to be an economical car (see Economy Chart).

Ford owners have a choice of the in-line Six or the 239.4-cubic-inch V8 with 7.2:1 compression ratio. Of the owners reporting, 57 percent had V8s. The Six is gaining in popularity: 43 percent in the survey now own sixes as compared to 18 percent in our previous Ford survey.

The body is solid. The workmanship and assembly for 1953 seem to be better than at any time since the war. Driving in extremely heavy rainstorms, I found no leaks. No rattles or squeaks developed.

Steering is easy and 4 3/4 turns of the large wheel will satisfy almost everyone but the sports-car enthusiasts who like quick-acting steering.

I rate Ford's interior finish "tops" for the lower-price class. The upholstery and the springs in the foam-rubber cushions give an extremely comfortable ride. The enlarged curved one-piece windshield and the wide rear window offer excellent vision.

(Continued to page 268)

**MONROE AUTO EQUIPMENT CO.**  
Monroe, Michigan • Dept. D  
World's Largest Maker of Ride Control Products

# SAVE ON BRAND NEW HEAVY DUTY HYDRAULIC and AIR EQUIPMENT



ITEM #350  
LOGAN AIR CYLINDER

Item #350 — Double acting pneumatic cylinder, 6" bore, 6" stroke, 1 1/2" shaft. Adjustable cushions at both ends.

Flange mounting at shaft end. Overall length closed 18". Ideal for use in 125 PSI systems. Shipping weight 40 lbs. F.O.B. Chicago.....

**39.50**



ITEM #59  
LOGAN 4-WAY, Foot Operated AIR VALVE, Item #59. Model 6520—Ideal for operating air vices, presses, air machinery, and other double acting pneumatic devices. Heavy cast construction. Standard 1 1/2" pipe thread ports. Overall dimensions 8 1/2" x 5 1/2" x 7 1/2". Gov't Acquisition cost \$42.00. Shipping weight 28 lbs. An outstanding buy.

F.O.B. Chicago.....

**15.00**

## CENTRIFUGAL PUMP

General Motors — Allison  
**200 GALLONS PER MINUTE**

For Draining Basements  
Fire Fighting • Irrigation  
Fuel Transfer  
Swimming Pools  
Home Water Systems  
Dewatering

Converted for high volume commercial, home, and industrial use. Standard 2 1/2" pipe thread inlet, two 1 1/4" pipe thread outlets. Ball bearing supported 3/4" shaft. Easy priming. Rotation, counter-clockwise facing shaft. Gov't acquisition cost \$145.00. Complete with full instructions. Ship. wt. 35 lbs. F.O.B. Chicago.....

**39.50**

Suction Lift	Head Pressure	Gal. Per Min.	H.P.	R.P.M.
10'	75'	260	6.0	3500
10'	65'	200	5.2	3500
10'	80'	40	1.5	2500
10'	50'	140	5.0	3500
10'	30'	100	3.0	2500

cost \$145.00. Complete with full instructions. Ship. wt. 35 lbs. F.O.B. Chicago.....

**39.50**

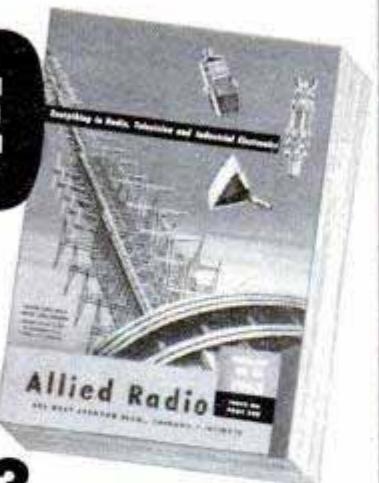
(ITEM #130)

ITEM #130

# GET THE WORLD'S LEADING TV & RADIO CATALOG

# FREE

236  
VALUE-  
PACKED  
PAGES

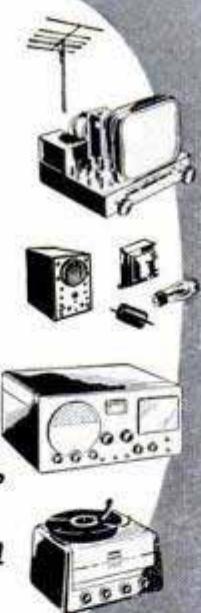


## 1953 ALLIED BUYING GUIDE

*Save on Everything  
in TV & Radio!*

### Everything for Experimenters, Builders, Amateurs, Service- men, Engineers and Soundmen

Get ALLIED's big 236-page Catalog featuring the world's largest selections of latest top-quality electronic equipment at lowest, money-saving prices. See the newest in custom TV chassis, TV accessories, FM and AM radios, Amateur Equipment, High-Fidelity sound, P.A. systems, recorders, test instruments, builders' kits—plus thousands of parts, tubes, tools and books. Get more for your money—send today for your FREE 1953 ALLIED Catalog!



FREE  
CATALOG

SEND FOR IT TODAY

### ALLIED RADIO

ALLIED RADIO CORP., Dept. 5-DD-3  
833 W. Jackson Blvd., Chicago 7, Illinois

Rush FREE 1953 ALLIED 236-Page Catalog

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Doors open and close easily. New is the arrangement whereby the door is held stationary at the half-open position, which is convenient in parking lots or other close quarters. Window cranks operate easily; however, they require 3½ turns for opening or closing, which is too much. I don't know why some engineers think drivers like the exercise of turning window cranks so many turns.

In my previous article on Ford, I criticized the fact that the full-circle horn ring obstructed the view of the speedometer and other instruments. I'm glad to see that the unnecessary upper half of the horn ring has been eliminated.

All switches are within easy reach and well located, except that the switch-key starter is operated by the left hand, which I don't like; most owners are right-handed. I'll bet the majority would prefer a switch key operated by the right hand. Ford sticks to the manual choke, which I still prefer despite the fact that automatic chokes are gaining in popularity.

There is a lot of legroom in the car. The wide brake pedal is excellent and is mounted from above so that tremendous leverage and easy operation result. This design eliminates the hole in the floorboard so that no dust or air enters. (93 percent of the owners like the overhead-mounted brake pedal.) Even at high speeds and over winding roads I found little fading of the excellent brakes. They are self-energizing, which means that the vehicle's forward motion helps in their application.

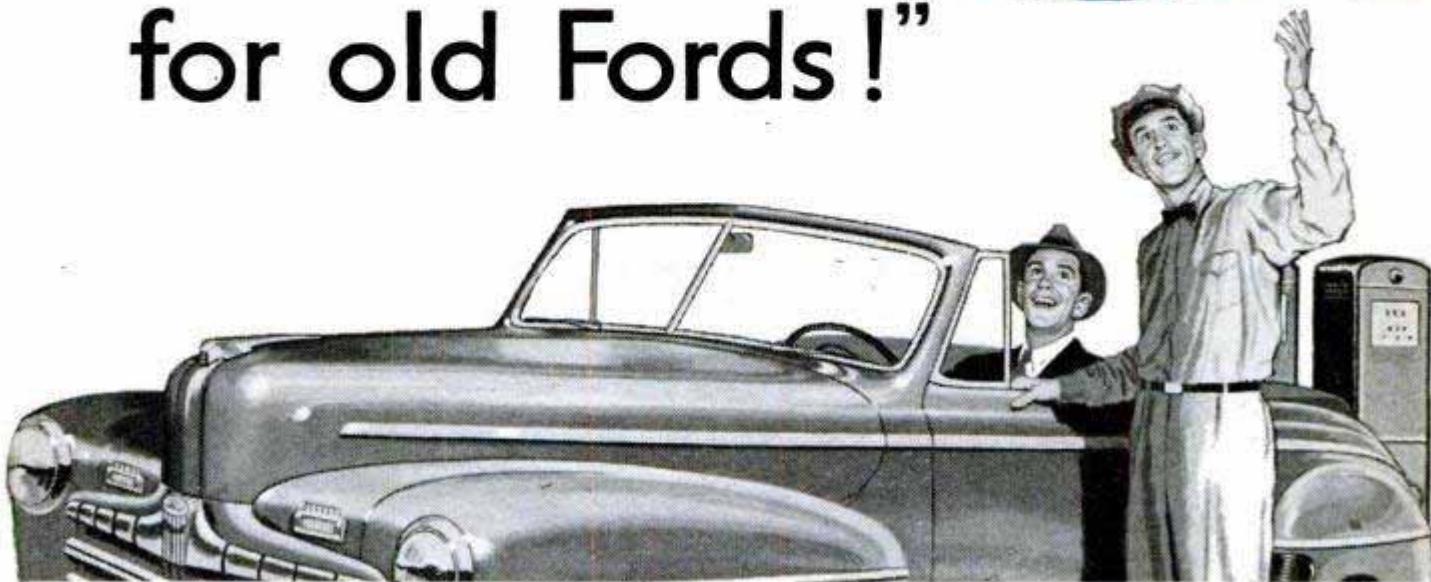
Ford's headroom is better than average and a tall person wearing a hat can ride in comfort.

The hood locks only on the outside. I would prefer an inside lock, which helps prevent theft of underhood units. The six-cylinder-engine oil-filler cap is conveniently mounted on top of the valve cover, which service-station men will appreciate. The oil filter is mounted horizontally on a bracket which is part of the crankcase casting—a practical idea. The center-fill gasoline-cap location which Ford introduced last year is highly desirable and makes it easier for the attendant to fill from either side. (More makes are adopting center filling.)

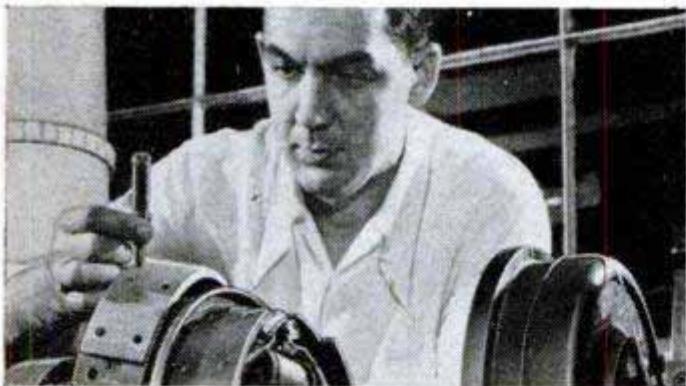
Purchasers of 1953 Fords have the option of three transmissions. They are three-speed conventional, three-speed conventional with overdrive, and fully automatic transmission (Fordomatic). In spite of the popularity of automatic transmissions, it appears that owners in the lower-price brackets are not as "self shift" conscious as purchasers of higher-priced cars. Our

(Continued to page 270)

# "They're a new lease on life for old Fords!"



**Genuine Ford Parts are just naturally the best parts  
you can put into your Ford. Here's why:**



**They're made right to fit right** by the men who made your Ford . . . often on the same production lines as the parts now in your Ford. That's why they're easy to install, and that's one reason they save your time, your money, and your Ford. In addition . . .

**They're Track Tested and proved** by Ford engineers who give them the toughest imaginable tests. When they meet Ford's high standards, they become Genuine Ford Parts and you can be sure they're built to last and *last!*

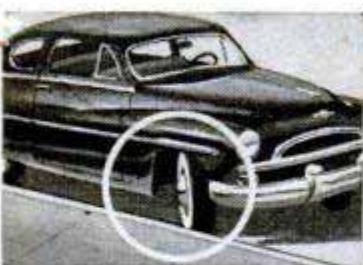


**They're easy to get!**

They're available at all Ford Dealers and the selected independent garages where you see this sign.

**Insist on the parts that  
keep your Ford All Ford**

## How to get more mileage out of your motoring dollar



"TOE IN" AGAINST CURB

curb or put car in gear. If you don't, there's always a chance the parking brake may "relax"—and you may be faced with a costly repair job you could easily have avoided.

**Don't let your car "hang" on parking brake alone.** When parking on even a slight grade, always "toe in" front wheels against

**Check body and chassis bolts**—when you "tune up" this spring. Loose bolts allow car to develop squeaks and rattles . . . may cause wear by developing uneven strains. Torque wrench should be used in accordance with body-bolt torque specifications of car manufacturer.



TIGHTEN BODY BOLTS



THIS MEANS TROUBLE!

has up to 10 times more filtering area than ordinary filters . . . stops dirt you can't see. The Purolator Micronic\* is specified on more different makes of cars than any other oil filter.

Purolator Refills come in a full range of sizes . . . cost as little as \$1.60.

\*Reg. U. S. Pat. Off.

Check your oil filter every time you change your oil



# PurOlator

World's finest OIL FILTER

report shows that 48 percent of the owners polled still stick to the conventional three-speed transmission, while 23 percent prefer the overdrive unit (a drop from 39 percent last year). However, Fordomatic owners we polled showed an increase from 16 percent to 29 percent; 38 percent of the V8 owners have Fordomatic while only 20 percent of the six-cylinder owners have it.

I found Fordomatic to be a very satisfactory unit and it certainly rates high among those who know automatic transmissions. It is flexible in operation and there appears to be little slippage or effort in getting under way. There is a slight hum while accelerating, which diminishes as speed increases. Fordomatic combines a three-speed torque-converter transmission with a 3.31:1 rear-axle ratio (as against 3.90:1 ratio with regular transmission). The gearbox is the planetary type, permitting shifting between all ratios without torque interruption. Gear ratios are 2.44 in low, 1.00 in high and 2.00 in reverse. Before the engine can be started the shift lever must be in neutral.

Starting in drive range with moderate throttle, all gear changing takes place smoothly and almost effortlessly between 17 and 65 miles per hour, depending on throttle opening. It shifts to high gear at about 65 miles per hour with a slight forward surge, but only when the throttle is held wide open. In ordinary driving, it shifts to high between 25 and 30 miles per hour when the throttle is held in slightly open position or foot pressure is taken off the throttle. Acceleration is good, using drive only, but can be increased somewhat by starting in low, allowing the engine to "rev" up to about 30 miles per hour, then pushing the selector lever quickly to drive while the throttle is wide open.

Even with full or light throttle, Fordomatic shifts down to intermediate gear below 20 miles per hour when in drive position. Down-shifting is smooth and at speeds below 40, regardless of throttle opening, the shift to low places the transmission in its lowest ratio (2.44:1). This aids braking on descending grades or for fast stops. Below 57 miles per hour, intermediate ratio is brought into use by pressing the throttle quickly to the floorboard; at speeds below 20 miles per hour, downshift to intermediate occurs at less than full throttle. Under closed-throttle conditions, the automatic downshift occurs between 5 and 8 miles per hour.

Like most automatics, there is a tendency to creep if the engine is running while standing in drive or low with the throttle

(Continued to page 272).

# Here's a New Portable Jig Saw with a Real Motor made by Black & Decker

And it converts quickly to a handy, stationary (table model) Jig Saw

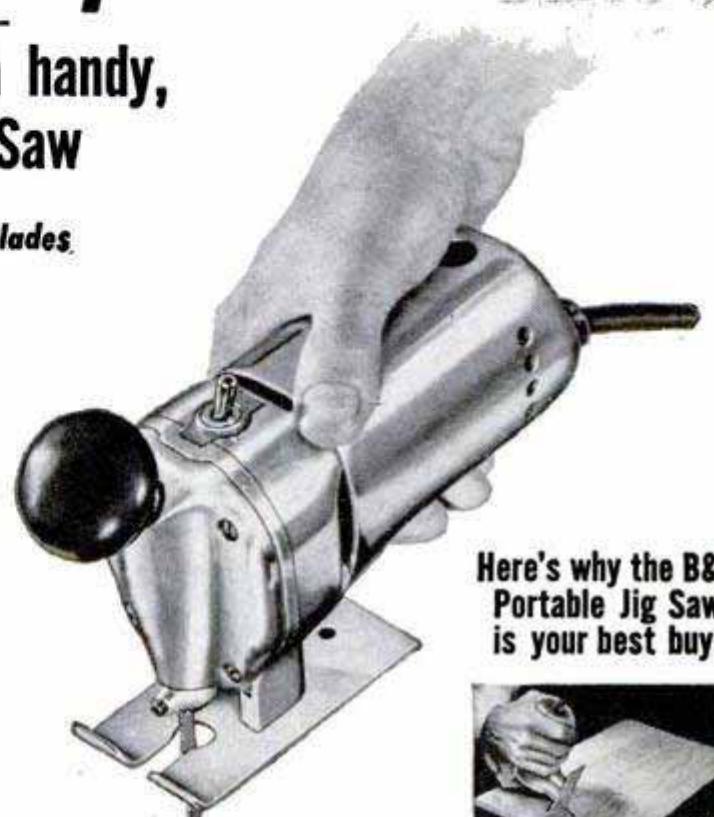
**Only \$49.50** complete with 5 different blades  
(coarse tooth, fine tooth, 2 metal-cutting, knife blade)

There's nothing like the Black & Decker Utility Portable Jig Saw! It does the work of a Jig Saw, Sabre Saw, Keyhole Saw, plus most Band Saw operations! Fits in the palm of the hand—all you do is guide it! Or, it mounts in an accessory table in 10 seconds. It's perfect for home repairs, plumbing, hobby projects, electrical work, furniture, signs, displays, floor-covering installations, etc. A specially-designed B&D motor, custom-made for the tool, assures smooth, steady operation. Try this handy, new Black & Decker Utility Jig Saw at your nearest hardware, building supply, appliance or department store!

Jig Saw  
Converts to  
Table Model  
in Seconds



With the Accessory Table, you have a bench model saw that supports the work while you cut. Improves accuracy and frees both hands for guiding. Miter Gage and Rip Fence assure accurate angle cuts and smooth, even ripping. Price, complete, only \$14.95.



Here's why the B&D Portable Jig Saw is your best buy!



Sabre-type blade makes pocket cut without need of "entrance" hole.



Compact, lightweight . . . fits the palm of the hand. Guides easily.



Fan cools motor and directs air stream to blow sawdust away from guide line.

Cut these materials in a jiffy with this B&D Jig Saw

- ★ Hardwood, softwood, plywood
- ★ Ferrous metals, non-ferrous metals
- ★ Plastics, leather, rubber
- ★ Composition boards, insulating materials

**HARDWARE WEEK SPECIAL**

B&D Utility 6" Heavy-Duty Saw  
Plus Depth-and-Bevel Attachment . . . BOTH **\$59.50**  
FOR ONLY . . .

**Black & Decker**  
PORTABLE  
ELECTRIC  
TOOLS



**FREE!** Book of hints to make home repairs and hobby projects easier. Mail to: THE BLACK & DECKER MFG. CO., Dept. H4M, Towson 4, Md.

Name.....

Address.....

City..... Zone---State-----

# BIG MONEY

*in your  
hands!*



**BE YOUR OWN BOSS!** Men who are determined to get ahead in something for themselves will find this opportunity hard to beat! Where else can a man turn his own labor so quickly and easily into BIG MONEY! Earn as high as \$50 and more a day sanding floors with an easy-to-run American Machine—and YOU ARE BOSS. Prospects everywhere—old and new homes and remodeling. Pleasant indoor work—steady the year round. No schooling—no experience needed. Age makes no difference—men 18 to 80 are active and successful. Send coupon for "money-making" booklet entitled "Opportunities in Floor Surfacing"—enclose 25c in coin or stamps to cover handling.



## AMERICAN FLOOR MACHINES

SEND

The American Floor Surfacing Machine Co.  
535 So. St. Clair St.  
Toledo 3, Ohio

Enclosed find 25c in stamps or coin for booklet "Opportunities in Floor Surfacing", telling me how I can start my own floor sanding business.

Name \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

closed. "P" position on the quadrant is for parking; it locks the transmission with or without the engine running. The car will not roll in either direction. I tested this on a 32 percent grade and the car did not move an inch when in "P" position, without hand or foot brake being used.

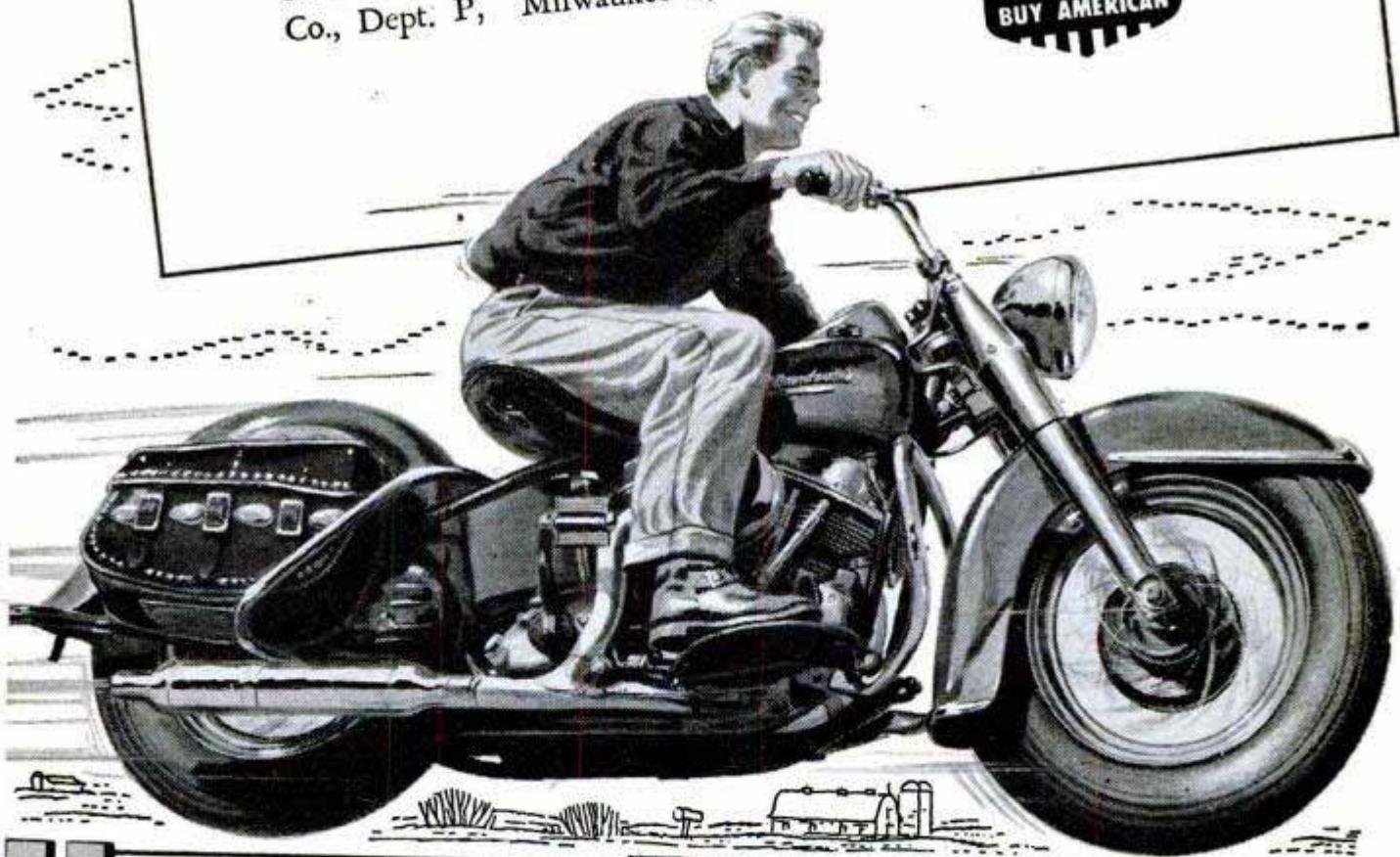
After putting the new Ford Six through its paces, I conclude that Ford for 1953 offers a reliable, dependable and economical car. While Ford apparently has not entered the horsepower race in the lower-price field (as horsepower for both Ford engines is the same for 1953 as it was in 1952) the only objection I find is that more horsepower in each engine would be desirable. The Ford V8 made its reputation by having outstanding acceleration and top speed when it was introduced in 1932, and for a period of years it maintained its reputation as a top performer. Actually, the Ford V8 today develops only slightly better top performance and power than some earlier and lighter models, because today's Ford is several hundred pounds heavier than the first Ford V8s—yet it is powered with an engine developing 110 horsepower as against 85 horsepower in prewar models. Speaking as one who wants exceptional performance (and millions do) I'd like to see Ford drop in about 25 more horses in each engine and regain that reputation for zip and pep for which the earlier V8 models were noted. To do so probably would require more displacement in the Six, but an overhead-valve arrangement would be all that is needed for the V8 in which displacement is sufficient. Perhaps we shall see that before too long. ★ ★ ★

## Sub-Zero Commercial Cooler

Food cooled to a frigid—150 degrees Fahrenheit by a "cascade" process was recently shipped by unrefrigerated boxcar from San Francisco to Chicago, where its temperature registered a safe—10 degrees. This same freezing process is being used to strengthen hacksaw blades by changing the crystalline structure, to "age" gauge metal and to shrink steel valve rings so they may be inserted easily in automobile engine blocks. Capable of cooling materials to —280 degrees, the system uses a special refrigerant which is denser than ordinary gas and is itself refrigerated as it moves through two 2-stage compression cycles. An automatic cabinet freezer no bigger than the average home freezer is now being manufactured for laboratory use. This system of refrigeration uses less horsepower than the conventional method. A two-horsepower engine will do the work of the 7½ formerly needed.

# "Takes miles in its stride"...

HERE'S real get up and go... and two-wheeled luxury... as you twist the throttle on the greatest motorcycle ever. It's years ahead in design... miles ahead in power. The improved, 55 HP, 74 OHV motor features rotating valves, hemispherical combustion chambers and hydraulic valve lifters. And you'll never match this powerful beauty for sheer riding comfort on 5-mile jaunts or 500-mile trips. Visit your Harley-Davidson dealer today. Bring along a buddy. Write for free illustrated literature. Send 25 cents for your copy of the action-packed, picture-filled ENTHUSIAST Magazine. Harley-Davidson Motor Co., Dept. P, Milwaukee 1, Wisconsin.



# HARLEY-DAVIDSON

HYDRA-GLIDE®

## This Curiosity Shop Beats the Dickens

(Continued from page 127)

canoes through a back window of the shop.

"I have seen as many as a hundred baskets lined up on the dock," recalls James. "Standley would walk down the dock with a bag of money and place in front of each basket the amount of money he was willing to pay for it."

"Indian and Eskimo handicraft is a fading art," says James. "We used to have a trader roaming through Alaska who picked up tons of the stuff every year. Now we get it piecemeal. Tourists have cleaned out the curios in Alaska like grasshoppers clean out a wheat field."

Today the Indian who comes into the shop with some handicraft usually has it wrapped—and well disguised—in paper. James once asked an old one why, and got this answer: "White man too nosey. Many times me stopped on street by people who want look. This makes walk slow. Me wrap up. Walk fast."

Eskimo and Indian handicraft has long been fascinating to Europeans. "One day—before World War I—there were buyers in the shop at the same time from Berlin, Paris, London and Moscow," recalls James. "They all knew one another, too."

The shop is famed as a world's crossroads.

Some 3000 persons, from many lands, pass through it in a day. The stream is endless and a couple dozen persons must invariably be nudged to the door at closing time.

Recently two bearded men who entered the shop separately met over some walrus tusks. They looked at each other as if they were gazing into a mirror. The resemblance was striking. Questions were asked, shoulders clasped, tears shed. The bearded men were brothers from the Balkans who had not met in 40 years.

Marliss Poth, salesgirl, is fascinated with her work, not because of the thousands of interesting curios in the shop, but because of the thousands of intriguing persons who come to buy them.

"My first customer one morning was a woman from Italy," she recalls. "Wanted to buy some Eskimo muk-muk spoons for a museum, and examined each one carefully through a monocle. Next came a woman from India wearing her native garb, with a caste mark on her forehead. She spoke excellent English, but never a word to me directly in buying a shell lamp. All conversation passed through a man who seemed to be an aide or secretary. Maybe my freckles indicated I was of an inferior caste. My next customer was a large American woman wearing plaid shorts and wanting to buy

(Continued to page 292)

# MAKE BIG MONEY GRINDING LAWNMOWERS



A profitable full-time or spare-time job at home.

**NO EXPERIENCE NEEDED** Simple to set up — easy to operate. Many have sharpened their first mower expertly just minutes after unpacking their Ideal!

**NOTHING TO TAKE APART** No need to disassemble the mower if you use an Ideal. Put the whole mower in the machine to get a razor sharp edge on bed knife and reel of any mower—hand or power.

**USERS PRAISE IT** "I have only praise for your machine. My customers think I am a wizard at grinding mowers!"—D. Pemberton. "I sharpen lawnmowers only in my spare time and average \$2.50 an hour. I sharpened one in 16 minutes."—F. Murphy. "I have sharpened 229 mowers and made \$602.20."—R. Bowman.

**HUNDREDS OF DULL MOWERS** Ideal users have sharpened over a thousand mowers a year. Mowers everywhere get dull through normal use and a winter's accumulation of rust . . . Get your Ideal NOW in time for the Spring rush. It will pay for itself in no time!

**IDEAL LAWNMOWER SHARPENER**  
Our 51st Year

For FREE CATALOG Write to: The FATE-ROOT-HEATH CO., Dept. PM-4, Plymouth, Ohio

# build a kitchen like this with Western Pines\*



You'll find handsome Western Pines\* adaptable to any remodeling job or workshop project!

Easy-to-work with hand or machine tools, the Western Pines\* cut clean and accurately. Their smooth surface and straight grain grip paints, stains or enamels—look well waxed to a natural finish.

Use the Western Pines\* to build kitchen cabinets, garden furniture, bookcases—to convert the basement into a playroom, or to panel a wall! Ask your local lumber dealer for the Western Pines\*.

## the Western Pines

\*IDAHO WHITE PINE

\*PONDEROSA PINE

\*SUGAR PINE

### FREE HOW-TO-DO-IT INSTRUCTION SHEETS

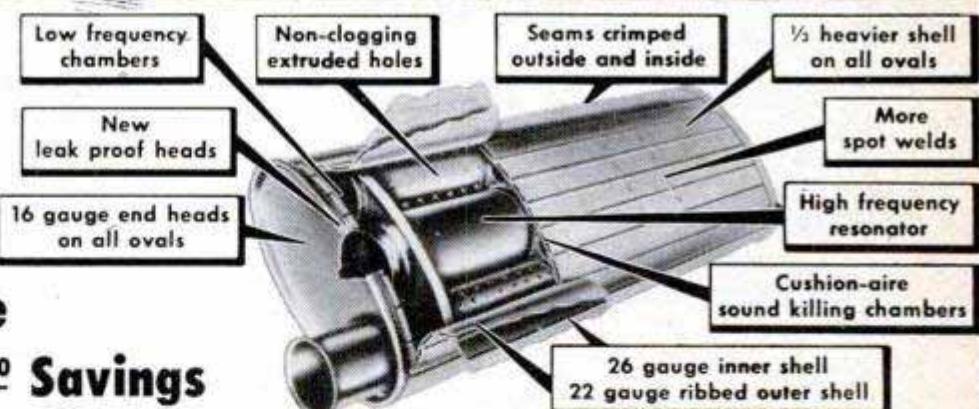
show you how to do scores of actual projects and remodeling jobs. Plus picture-packed booklet, "ENCHANTING HOMES OF WESTERN PINES," brimming over with more than 68 building and decorating ideas. Write for FREE Idea Packet No. 203 today, to WESTERN PINE ASSN., DEPT. 203-N, Yeon Building, Portland 4, Ore.

## All Mufflers are NOT Alike

### SILENTONE

gives you

- ★ Safety
- ★ Power
- ★ Long Life
- ★ Up to \$8<sup>00</sup> Savings



These features show why Silentones are the highest quality mufflers. They're made to car factory specifications or better • scientifically designed to lower back pressure which robs your engine of

power • made of heavy steel inside and out. Because Silentone Mufflers are sold only through leading automotive chain stores, you save as much as \$5.00—up to \$8.00 if you install it yourself.

### DYNATONE

### The Deep, Mellow Tone Muffler That's Engineered—Not Packed

Tuned for each make of car . . . costs less than  
"Hollywoods" • lower back pressure • more

gas mileage • longer life. Ask about Dynatone duals for greater power and gas savings.

Write Dept. 27-D for name of your nearest Silentone dealer

### SILENTONE®

SOLD ONLY BY AMERICA'S  
LEADING AUTOMOTIVE CHAIN STORES

• TOLEDO 1,  
OHIO

# COSTS MUCH LESS...

Than Similar Blades

## CRAFTSMAN Carbide-Tipped 8-Tooth Saw Blade



Out-performs similar blades selling for much higher prices! One of these saws—a 10-inch blade in actual service—sawed more than 27 miles of  $\frac{3}{8}$ -inch laminated Masonite without resharpening, until damaged by a steel object. Safer, 8-tooth design... teeth project only .020 inch above non-cutting edge. Saw can't grab—protects you from kick-back injuries! Special steel saw blade is heat treated, tungsten carbide tipped. Cuts faster... easier... uses less power than ordinary circular saw blades... generates less heat... needs less resharpening. Rips, cross-cuts, miters. Cuts woods, plastics, Formica, Masonite, Transite, laminates, roofing, aluminum, etc. (Not for masonry, steel, iron, or other ferrous metals.) Be sure to see this sensational blade at your nearest Sears Retail Store today!

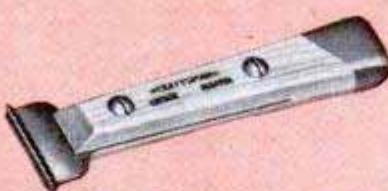
Diam.	Arbor Hole	Fits These Saws	Price*
5 1/2 in.	13/16 in. diamond	6-in. Skil-saw electric hand saw	\$ 8.95
6 in.	1/2 in. square	Mall, DUNLAP electric hand saw	8.95
6 in.	5/8 to 1/2 in. round bushed arbor	Porter-Cable elec. hand saws; bench saws	8.95
6 1/8 in.	1 1/8 in. round	6-in. Black & Decker CRAFTSMAN 6 1/2-in. electric hand saw; bench saws	8.95
6 1/2 in.	1/2 in. round	bench saws	8.95
7 in.	5/8 to 1/2 in. round bushed arbor	Bench saws	9.50
7 in.	13/16 in. diamond	Bench-saw, and Sears former 02186 electric hand saw	9.50
7 in.	1/2 in. square	Mall elec. hand saw	9.50
8 in.	5/8 to 1/2 in. round bushed arbor	CRAFTSMAN 8-in. electric hand saw, bench saws	9.50
8 in.	13/16 in. square	Mall elec. hand saw	9.95
8 in.	13/16 in. diamond	Skil-saw electric hand saw	9.95
8 in.	1 1/8 in. round	Black & Decker electric hand saw	9.95
10 in.	1 to 3/4-5/8 in. round bushed	Bench, builders', radial and swing saws	11.95
12 in.	1 to 3/4 in. round bushed arbor	Radial saws, swing saws and bench saws	18.95

### 3 More Great Sears Values in Carbide-Tipped Tools



**CRAFTSMAN** Tungsten Carbide-Tipped Masonry Drills. Professional quality. Drill holes up to 3 in. deep in concrete, brick, slate, stone, marble, wallboard, etc. Fast, smooth, accurate! Save hours of hard work... much faster than using a star drill. Round shanks fit all  $\frac{1}{4}$ -in. or larger electric drills or hand and breast drills.

4-pc. Set. Sizes listed below	\$3.95*
1/4-in. size; 4-in. length	.85*
5/16-in. size; 4-in. length	.85*
3/8-in. size; 4-in. length	1.15*
1/2-in. size; 4-in. length	1.35*



**CRAFTSMAN** Carbide-Tipped Scraper. Works faster and stays sharp longer than ordinary steel scrapers. For scraping paint, enamel, or varnish from wood, metal, or masonry. Blade is 2 inches wide; has two scraping edges. Comes in two sizes. Get one in time for your spring house scraping. Available at your nearest Sears Retail Store.

7 inches long	\$2.75*
11 1/2 inches long	2.95*



**CRAFTSMAN** Carbide-Tipped Turning Chisels. Special steel blades tipped with tough carbide! Stay sharp 20 times longer than ordinary edges! Easily resharpened. Rugged hardwood handles. For working wood, plastic, aluminum, and brass. Four-piece set consists of one each of the sizes listed individually below.

4-piece Set	\$13.95*
1/4-in. parting tool	2.98*
3/8-in. round nose chisel	3.50*
3/4-in. skew chisel	4.25*
1 1/2-in. gouge	4.25*

\*Prices slightly higher south of the Ohio and west of the Mississippi rivers.

**CRAFTSMAN** and **DUNLAP** Tools by **SEARS, ROEBUCK and CO.**

# NO BIGGER VALUE... in America

**CRAFTSMAN**  
REG. U. S. PAT. OFF.

## RADIAL SAW

Built for steady, heavy duty production work

Sold only by Sears!

You can do all the jobs shown below . . . and many more!



Equipped with two sets of sealed, precision ball bearings; lubricated for life.

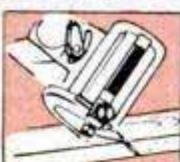
**\$299.00\***

Cash

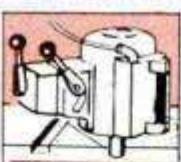
Without legs or lower shelf

\$30.00 Down

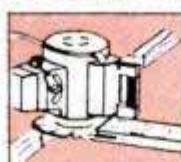
On Easy Terms



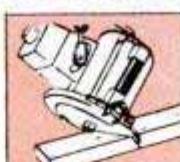
Bevel Cuts!



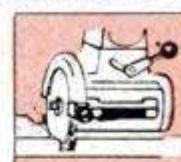
Routs!



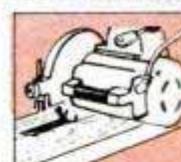
Tenons!



Cuts Rafters!



Dadoes!



Ploughs!

### Only \$30.00 Down puts this great Saw in your shop!

We believe there is NO other radial saw of this quality in this price range! Crosscuts, rips, miters, compound miters, rabbets, and even shapes with proper cutters! Precision-built for continuous, heavy duty use . . . for production millwork, lumber yards, shipping rooms, contractors, builders, etc.

Saw pulls through work; swings, tilts, locks in any position; quick-setting stops for 0, 45 and 90°. Controls in front. Automatic front-pivoted guard encloses blade edge. Sealed, lubricated-for-life, precision ball bearings. Capacity of cut, 2 $\frac{1}{2}$  in.; crosscut capacity, 12 $\frac{1}{2}$  x 2 $\frac{1}{2}$ -in. stock; rips to center of 48-in. sheet of plywood. Anti-kickback pawls.

With 10-in. carbide-tipped 8-tooth combination blade (1-in. bore); 1-H.P. 3450 R.P.M. single-phase ball-bearing capacitor motor (115-230 volt 60-cycle A.C.); 15x42-in. wood work table with removable fence; and 28x36-in. stamped steel base. (Steel legs and lower shelf not included.) Make your own comparison . . . convince yourself! Prices shown are for shipment from factory in Cincinnati, Ohio.

**CRAFTSMAN Radial Saw, as above....Cash \$299.00\***  
**Set of 4 steel legs and lower shelf for CRAFTSMAN Radial Saw above.....Set \$23.00\***

\*Prices slightly higher south of the Ohio and west of the Mississippi rivers.

### Famous for fine quality...precision performance...low price!

## NEW! Worcester ROTOR MASTER\* MODEL 810

Cuts wider than its own tread! • Extra rugged, reinforced housing • Deflector whiskers debris off to the side • Safety-slip clutch and belt drive save blade and motor from shock and strain • Tough "Sta-Temp" air-screw blade stays sharp longer • Briggs & Stratton 1.6 h.p., 4-cycle engine.



## A GREAT NEW "Rotary"

### with the most famous name in mowers!

Here's the "master" of all rotary mowers — the new Worcester ROTOR MASTER, developed by Worcester Lawn Mower Company, makers of quality lawn mowers for more than half a century.

With its high speed, air-screw blade forming a powerful suction, it does a perfect job of drawing up tough, high, matted grass or weeds and cutting them at just the height you want. Then it spreads the cuttings in a fast-decaying mulch that's beneficial to your lawn. And, because the Worcester ROTOR MASTER cuts a 20-inch swath that is wider than its own tread, you can trim right up to walls, walks, shrubs, etc. Extra large rear wheels and balance poised engine mounting make it "handle like a baby carriage".

### EXTRA RUGGED CONSTRUCTION

As for safety — rugged steel housing is heavily reinforced for extra strength. Deep front guards protect the sharp, "Sta-Temp" blade from sticks and stones. A special deflector sends clippings and debris off to the side. High quality safety-slip clutch and v-belt drive save the blade and motor from shock and strain.

See this beautiful, rugged new Worcester power mower at your dealer's — now!

### Valuable hints on lawn care!

**Details** on the complete Worcester line of mowers, which includes: 20" Worcester ROTOR MASTER\* Model 810, rotary mower; 21" Worcester SHEAR MASTER\* Model 900, reel-type; 18" Worcester POWER MASTER\* Model 750, reel-type; 18" Worcester DYNA MASTER Model 700, reel-type electric mower; and four modern hand mowers. WRITE FOR BOOKLET, full of interesting illustrations.

\*Reg. U.S. Pat. Off.

### WORCESTER LAWN MOWER COMPANY

Division of Savage Arms Corporation  
84 Broadway, Chicopee Falls, Mass.

### They Outsmart Death in the Air

(Continued from page 85)

The pilot was near exhaustion. Running at top speed with the heavy exposure suit was sapping his strength. Though it kept him warm it was added weight. He had to rest. In desperation he threw himself down behind an embankment and aimed his jammed pistol at the soldiers. This ruse worked for they stopped and took cover. Their indecision gave him a breather.

He could see the planes above and wondered why they didn't come in and strafe his antagonist.

The senior pilot in the ResCap group had given up hope of finding the pilot and radioed the controlling force his intentions to return to base. The helicopter did not receive this transmission, however, and continued on a rescue course. The senior pilot broke away from his formation and went after the helicopter to signal, by light, to end the search.

On the ground the downed pilot raised his head above the embankment, like a turkey gobbler on a frosty morning, and the soldier creased his throat with a bullet. The pilot fell back and clutched the bleeding flesh muttering, "Oh God, I've really had it now!" He cleared his throat and spit but no sign of blood was evident. He thrilled at this, for it meant that he had only a flesh wound.

However, the accuracy of the near-fatal shot spurred him on to renewed efforts. For the first time he lit one of his flares, leaped out of his hole and was off running again with the Commies in hot pursuit. He knew now the game was for keeps; it was escape or be killed. His pursuers must have felt inspired, knowing they had finally wounded him, for they no longer picked their way around the puddles but dashed madly through them in hot pursuit.

The flare was only lit seconds when the pilot heard the chatter of machine-gun fire. He looked up to see the ResCap planes diving and strafing the area around him. He waved that flare vigorously and for the first time in his headlong flight thoughts of home, his ship and the buddies flying those planes flicked across his mind.

Whether the soldiers were killed or not he did not know or care. At least, their firing had stopped.

His rescue was fast. The helicopter picked him up and delivered him to a destroyer which in turn transferred him via a highline to his carrier.

This was the end of his nightmare. It was also the beginning of work for the Navy's safety machinery which starts its

(Continued to page 280)

## MASTER GARDENER

NO PUSHING  
SELF-PROPELLED  
It's a lawn mower  
It's a power sickle  
It's a cultivator  
It's a rotary tiller  
It's a bulldozer  
It's a plow

Where else can you get a power tool that does so many jobs. Works for you year round.

Does terrific job Item 206 of preparing mowed deep seed bed without labor. Built-in power take-off to drive pumps, saws, generators, etc. Safety clutch can't burn out. More versatile and efficient than tractors costing twice as much. Converts in minutes to Lawn Mower, Power Sickle, etc. Basic self-propelled 2 hp tractor with Briggs or Clinton famous engine. Only \$119.50. Snow Blow.....\$39.50. Rotary Tiller.....\$42.50. Stickle Bar-Mower.....\$42.50. Furrowing Tool.....\$8.75. Lawn Mower Hitch.....\$4.50. Cultivator.....\$8.75. Disc Harrow.....\$15.75. Freight prepaid to most areas. Easy payment plan available.

## 32 Pcs. SOCKET SET



Highest quality guar. non-breakable sockets made by Husky. Beautiful, matched chrome alloy, absolutely the best. Complete range of 21 sockets from  $\frac{1}{4}$ " thru  $7/16$ " in  $1/4$ " drive and  $7/16$ " thru  $1-1/16$ " in  $1/2$ " drive; 2 extensions, reversible  $1/2$ " ratchet, adaptor bit, slide head, all angle coupling, 2 end wrenches,  $1/2$ " speeder handle and sturdy metal tool box. For prof. mechanics who want the best. Wt. 14 lbs. (Item 59) Easily worth \$41.50.

**\$16.95**

**45 Pcs. SOCKET SET**  
(Item 205) Contains a complete set of sockets in  $1/2$ " drive,  $3/8$ " drive and  $1/4$ " drive, plus all necessary extensions, handles, speeders, reversible ratchets, etc.; all uncond. guaranteed against breakage. Beautiful matched chromed thin wall alloy sockets in a sturdy handsome steel tool box. Wt. 17 lbs. List price \$62.90. Factory Special.....\$26.95

## 8-Pc. MAGNETIZED Screw Driver Set!

Permanently magnetized tempered and hardened tool steel blades. Plastic handles — unbreakable and shock-proof. Picks up and holds screw in tight spots. Makes impossible jobs easy. You get following types: Midget, stubby, close quarter, cabinet, thin blade, machinist, heavy duty, extra heavy duty. Fully guaranteed. Easily worth \$4.95. Item 106: \$1.95 wt. 3 lbs. Special.....\$1.95

## 3-Pc. ADJUSTABLE WRENCH SET

Made of finest steel alloy, chrome plated. Prices are exactly half actual value.

Takes the place of a whole set of tools. Packed in leatherette pouch. Set A—4-inch, 6-inch, and 8-inch wrenches. (Item 107), wt. 2 lbs. only.....\$2.95

Set B—8-inch, 10-inch, and 12-inch wrenches. (Item 108), wt. 4 lbs. only.....\$6.45

## 3-Pc. PIPE WRENCH SET

Made of finest German Tool Steel. Completely drop forged. Pipe sizes clearly marked for easy one-hand setting. Heavy sharp jaws will never slip. Ideal for master craftsmen. Set includes 8"-10" and 14" wrenches. Covers most pipe sizes. A combination of brute strength and precision workmanship. Will pay for themselves on one job.

Item 12, Wt. 6 lbs. Easily worth \$11.95. While they last.....\$6.55

# BEDROCK FACTORY PRICES

Discounts 50 to 85%

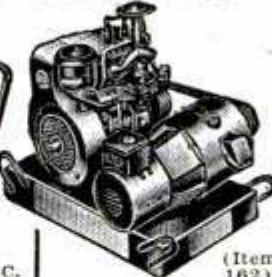
## WORLD'S FINEST GUARANTEED LIGHT PLANTS



(Item 24)



(Item 31)



(Item 162)

### PORTABLE LIGHT PLANTS

PUSH BUTTON START  
A.C. PLANT 500-700 watts  
 $110-120$  v., 60 cyc. A.C.

Powered by a rugged 2 hp. easy-starting Briggs gas engine. No wiring necessary, just plug in and operate. Plenty of current for any oil burner, freezer, brooder, emergency lights, etc. which require up to 700 watts. Ideal for Civil Defense, Fire Dept., trailers and camps. Complete with Voltmeter and built-in winding to charge 6 v. auto batteries. Item 24, Wt. 85 lbs. Fully Guaranteed. Be prepared if war or storm knocks out power lines. Reg. \$275 value. \$275.00 at.....\$143.50

700-800 Watt Plant  
(Item 44) same as Item 24 but larger.....\$169.95

1000-1200 Watt Plant  
(Item 45) same as Item 24 but larger.....\$199.50

350 watts—115 v. D.C. powered by a sturdy, easy-starting  $1\frac{1}{2}$  hp. Briggs engine, perfect for lights, radios, cabins, trailers, etc. Built-in control box with receptacle—just plug in. Wt. 65 lbs. Item 273. Reg. \$199.50 value.....\$99.75

110-120 V., 60 cyc. A.C. Absolutely the best made

— exclusive dynamically balanced armature; heavy windings develop up to 5000 watt overload for motor starting. Skid-mounted —portable. Powered by easy starting Briggs or 6 hp. Wisconsin engine — complete with all accessories; engine easily disconnected for other uses. Big outlet box, voltmeter, no wiring necessary. Ample current for ranges, water heaters, freezers, pumps, machinery, etc. Aftords both 110 and 220 volts. Ideal where heavy current is needed. Wt. 300 lbs. Reg. price \$995.00. With self starter. Factory price.....\$645.00

With Electric Self Starter.....\$359.50

Generator Only and control box. Drive it with your engine or tractor.....\$169.50

3000-3500 WATT PLANT  
(Item 198) 110-220 v., 60 cyc. A.C. with Wis. Engine. Push button start. Wt. 370 lbs. Heavy duty

generator only for belt drive. Wt. 115 lbs. (Item 198A).....\$239.50

3000-3500 WATT PLANT  
(Item 198) 110-220 v., 60 cyc. A.C. with Wis. Engine. Push button start. Wt. 240 lbs. (Item 163).....\$345.00

Generator only for belt drive. Wt. 115 lbs. (Item 198A).....\$239.50

### DIESEL LIGHT PLANT



(Item 1660) Diesel Master—11-12 kw.

115/230 v. A.C. single or 3 phase. 1800 rpm, direct connected. Designed and engineered for permanent power installations. Assures efficient, dependable low cost operation where heavy current is important. Wt. 1350 lbs. Regular list \$3,650.00. Factory price.....\$1895.00

10-11 kw. GAS DRIVEN PLANT. 115-230 v. 60 cycle A.C. powered by 4 cylinder Wisconsin air cooled gasoline engine. Direct connected. With self starter. Constructed similarly to Item 1660. Item 217 wt. 900 lbs. Factory price.....\$1175.00

### HEAVY DUTY D-C ARC WELDER



with mounting flange

strike and hold, because of specially designed arc stabilizer. Hi-lo switch and dial control gives wide range of welding heats. Run welder at 2600 rpm, with tractor, jeep or 15 hp. gas engine, or 7 hp. elec. motor. Complete with instructions, guar. and double V belt or flat pulley. You can pay more, but you can't buy a better welder. (Item 38) Wt. 110 lbs. \$400 value at.....\$99.75

DUAL CONTROL MODEL same as above but with built-in dual rheostat for low heat soldering, brazing, welding. Spec. \$119.50

WELDING KIT. Two 10 ft. leads, welding helmet, electrode holder, ground clamp. Sold only with welder at.....\$10.50 Write for prices on A.C. Arc Welders.

### Factory Prices on Catalog Items

Send 10¢ for BIG 1953 catalog. Hundreds of bargains

Prices f.o.b. Factory. 10 day Money back guarantee. Send check or Money Order

MASTER MECHANIC MFG. CO. DEPT. 36-C

## NEW MOTOR BIKE



Our Commando Motor Bike is trouble-free—carries amazing 5 yr. guarantee. Goes to 150 miles per gal. on all roads. Speed to 40 mph. No oil or gas fumes. Easy automatic pedal or pull starting. Has new principle of automatic transmission. No belts or chains—power transmitted directly to rear wheel. Accelerates quickly. Get free folder. Complete motor and kit ready to attach to your bike in 1 hour. Factory Price.....\$125.00

## Variable Speed Selector

Heavy duty, made by B. F. GOODRICH for industrial use. Provides instant speed changes for any drive. For machine tools, dryers, printing, conveyors, production lines, hoists — any operation requiring variable speed. Ideal for midget autos. Employs reliable "trouble free" planetary system. No hydraulic power losses or creeping. Infinite range, smooth operation, easy installation (data included). 3 sizes:  $1\frac{1}{2}$ -1 hp. wt. 36 lbs.; 1-2 hp. wt. 55 lbs.; 2-3 hp. wt. 105 lbs. Reg. list \$228, \$252 and \$352. Our prices... \$79.50, \$89.50 and \$114.50.

## VENTILATING FAN

(Item 10) Mount in wall or ceiling to ventilate any area. Over range, removes kitchen smoke and odors. Easily installed in furnace pipes. Forces even heat to all rooms. Powerful continuous duty motor, 110-120 v. A.C. Quiet, super efficient fan moves huge volume of air (4000 to 6000 c.f.m.) 8" Fan, wt. 5 lbs. \$6.85; 9" Fan, wt. 6 lbs. \$7.85; 10" Fan, wt. 7 lbs. \$8.85; 12" Fan, wt. 8 lbs. \$9.85. HEAVY DUTY FAN. Semi-enclosed motor, suitable for spray booths, restaurant exhausts, poultry houses, and other applications. 10" Fan, wt. 8 lbs. Item 10E. 12" Fan, wt. 10 lbs. Item 10D. \$12.95

## EXTENSION CORD

(Item 16) 40 ft. heavy duty, made of specially insulated No. 14 2-conductor wire. So tough that you can drive over it and yet flexible and easy to handle. Resists oil, grease or water. Extends electricity up to 400 ft. without voltage drop. Use indoors or out. Complete with heavy rubber plug and outlet. Wt. 2 $\frac{1}{2}$  lbs. Usually \$4.50—Special 40 ft. ....\$1.99 Comb: 2-40 ft. and 1-20 ft. (total 100 ft.) .....\$4.95 100 ft. length (one piece) \$4.85 WIRE ONLY (Item 50) No fittings. 100 ft. ....\$4.00

## Heavy Duty Power Cable

#12-2 Cond.—stranded, very flexible, rubber covered, special outside conductor for grounding power tools, etc. Finest heavy duty power cable made. 50 ft. (wt. 8 lbs.) Item 199. \$6.95 100 ft. (wt. 16 lbs.) Item 200. ....\$12.95

## HYDRAULIC JACKS

Heavy duty, precision built, smooth, positive acting with built-in relief valve. Hi-Lift with screw extensions. Govt. surplus at a fraction of orig. cost. (Handle included.) 3 ton (Item 208A) Wt. 15 lbs. \$9.45 5 ton (Item 208B) Wt. 17 lbs. \$11.45

"Handy" SANDY says:



You can always use a  
**GOOD  
SHORT-CUT**  
...here are some  
you'll prize!

**Fixing bulges in linoleum** calls for a really sharp knife and some good fresh linoleum paste. Slit the bulge, slip in a good supply of paste with a narrow-bladed knife, then put a heavy weight on the slit and leave it overnight.

**Whether repairing linoleum or laying it**, your knife MUST be sharp. I've seen plenty of people hurt because a dull tool slipped. Sharp tools are far safer to handle, because they'll do exactly what you want them to do. A No. 109 Combination Stone by CARBORUNDUM will keep them sharp and is basic to your tool collection . . . economical to buy—long lasting. Your hardware store or lumber dealer has a wide range of sizes for you to choose from.

**Masking tape** has so many more uses around the house than its original purpose of letting you get a clean sharp painting edge. For instance: criss-cross two short strips on plaster or wallpaper walls . . . drive your picture hanger at the point where they cross . . . no chipped plaster or torn wallpaper. It's a perfect mender for torn window shades and paper lamp shades. Use it for home canning labels—for smoothing the grips of rough or splintered tool handles. A gentle hint: ask your hardware store or lumber dealer for FLEXBAC Masking Tape by CARBORUNDUM. (No, all masking tapes aren't alike. You want one that goes on easily, holds firmly as long as you want it to stay, and peels off cleanly without leaving a trace. That's FLEXBAC Tape.)

**You can't plane a plywood edge**—so if a cabinet door binds, try a piece of Extra Coarse Flint Paper (wrapped around a 3"-square block of  $\frac{1}{4}$ " wood to save your fingers). Works fine. Another good product by CARBORUNDUM. Matter of fact, CARBORUNDUM makes five outstanding Flint Papers: Extra Fine—Fine—Medium—Coarse—Extra Coarse. A few sheets of each on your workshop shelf will equip you for any refinishing job in the house.

**What home upkeep short-cuts have YOU discovered?** that other folks would like to know about? Send 'em to me on a postcard — a separate card for each idea — and I'll pay you \$5.00 right away for every one I can use in later columns. Even if I can't use 'em (on account of duplicates, and such) I'll send you a worthwhile little gift for your trouble.

**Better send me a postcard anyhow**, and ask for a fine new booklet, "REFINISHING WOOD FURNITURE," which the CARBORUNDUM folks have just printed. There's no charge. Just address your card to me.



**"Handy" SANDY**  
**CARBORUNDUM**  
Niagara Falls, New York

"CARBORUNDUM" AND "FLEXBAC" ARE REGISTERED TRADEMARKS OF THE CARBORUNDUM COMPANY, NIAGARA FALLS, NEW YORK

wheels turning the moment one of its pilots is in trouble anywhere in the world.

Upon his return to the ship a meeting of all pilots of the air group was held. He addressed the gathering, giving a lecture on his experience. Thus, the important step of on-the-spot correction was made for the benefit of the other pilots.

He began his speech with, "This was the most eventful eight hours of my lifetime." It had been his third combat mission. "The Mark III suit saved me, I believe. It kept me dry and warm while wading in so much freezing water and plowing through the snow-covered fields."

In mentioning his failure to light a flare immediately he said, "I would surely set off one flare as soon as I got free of my plane to assure rescue pilots I was okay and to ascertain that they really had me in sight. I would also retain flares to be used when I was sure the helicopter crew could see my location."

He blamed himself for the gun's failure by telling the pilots, "I neglected having my pistol winterized. I recommend that all pilots entering the combat zone in winter weather . . . have that done before flight. The oil in my gun froze easily."

Following his talk there was a question-and-answer period. Since most pilots, like professional baseball players, go over in their minds what they will do if confronted with a certain play or situation, this is the way each pilot finds out if his own ideas of evading will work under similar conditions.

When the serious discussion was over the rescued pilot came in for a good-natured roasting.

The pilot's lecture is followed by endorsements from all units involved including that of the ship's surgeon. He is primarily interested in safety devices—belts, shoulder straps, crash helmets, exposure suits, what benefit they were in preventing serious injury and how they can be improved. It is also through the efforts of medical officers that mental and emotional factors are found which many times are the real cause of accidents.

Since all these reports are forwarded via a chain of command, the Fleet Admiral may find that a number of his planes have been shot down after having attacked a target in a similar manner. The admiral will then initiate a letter to all his flying commands, explaining in detail how the enemy is knocking down attacking planes who follow a definite pattern.

Finally, the report arrives in the Naval Aviation Safety Activity at Norfolk, Va., where a group of pilots, under Capt. Frederick Funke, Jr., USN, delve into the facts.

(Continued to page 282)

# For The Smoothest, Most Perfect Finishes USE DREMEL STRAIGHT-LINE ACTION SANDERS

## Only Dremel Offers All These Features:

**WORLD'S FINEST FINISHING SANDERS**—Patented Straight-Line Action sands with the grain of the wood—eliminates cross grain scratches and orbital swirls.

**MORE SANDING SURFACE PER DOLLAR** means more work done. Faster action (14,400 sanding strokes per min.); more than three times as fast as other type sanders!

**POWERFUL**, high-speed, lifetime reciprocating motor (110 V. 60 cycle A.C.)

**EASY, ONE-HAND OPERATION** less tiring on vertical and overhead operations. Sands into corners—other tight places.

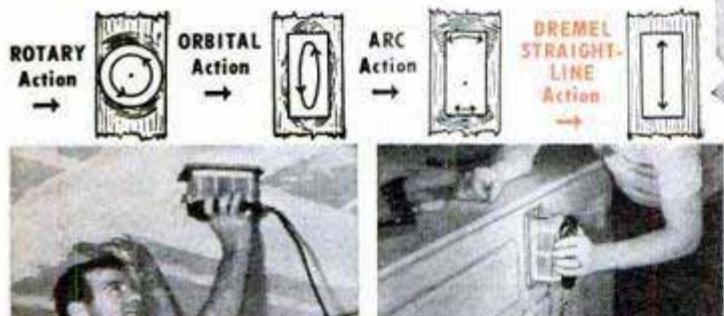
**TROUBLE-FREE USE** assured. Only two moving parts; never needs oiling. No armatures, brushes, gears or bearings to wear out and replace.

### FREE SANDING GUIDE

A handy, 16-page "How-to-do-it" booklet containing helpful hints on sanding and refinishing procedures packed FREE with each Dremel Sander. Extra copies, 25c.

### MAKE THIS SIMPLE TEST!

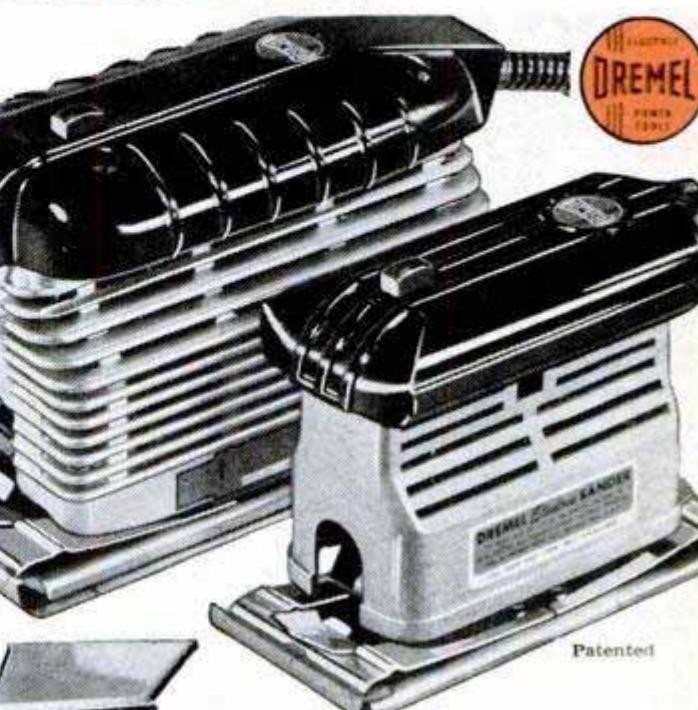
Sand a piece of wood, by hand, using the four different sander motions illustrated below. Note how the slightest cross-grain action produces scratches and swirls . . . how sanding *with-the-grain* leaves a scratch-free, satin finish. This test proves conclusively why professional craftsmen always sand with the grain of the wood . . . never cross grain. **YOU BE THE JUDGE!** If you are not 100% convinced that Dremel straight-line action is the finest, most effective sanding method known, we sincerely don't want you to buy.



A "must" for sanding dry-wall joints. Fast—cuts refinishing time in half.

**SEE YOUR LOCAL DEALER:** Dremel Tools are sold at better dealers everywhere. If your dealer can't supply, order direct on a five-day trial, money-back guarantee.

**DREMEL MANUFACTURING CO.**



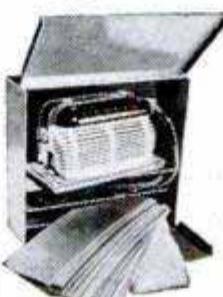
Patented

### MODEL 2000

Heavy-duty model: 21 sq. in. (3 1/8" x 7") sanding base. Price includes sturdy steel storage case, 25 asst'd. abrasives, 624.50

### MODEL "A"

Hobby and household model sander, polisher, massager (above, right): 12 sq. in. (2 3/8" x 5 3/8") sanding base. Price includes 6 abrasives, 1 polishing pad, 1 514.85



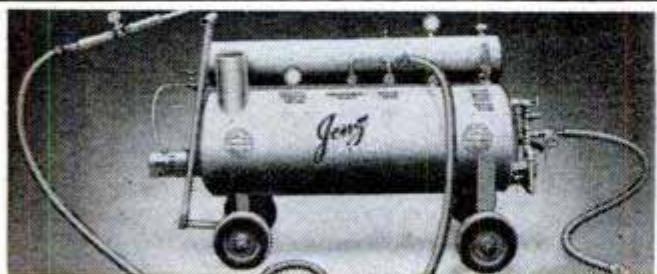
Sands right into tight corners. Prepares furniture for repainting.

Remit in full, and we will ship postpaid. Or, send only \$2.00 now, pay postman balance plus postage and C.O.D. fee.

**DEPT. 113-D**

**RACINE, WISCONSIN**

**GIVE THE HANDICAPPED A CHANCE. USE EASTER SEALS.**



### EARN \$6.00 PER HOUR

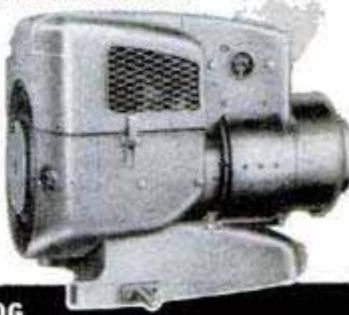
At a cost of 20c with the NEW JENZ SUPER CHIEF STEAM CLEANER. Portable—No moving parts—Cleans anything—Any place—Motors—Chassis—Machinery—Floors—Buildings—Oil Rigs, etc.—Oil fired—Economical—Fully tested and warranted. 75 lbs. steam in ten min.—Model 90. Complete \$388.50 as illustrated.....

F.O.B. shipping point  
**HI-PURE LABORATORIES, Evansville, Ind.**

### ELECTRICITY *Anywhere*

FOR PORTABLE, EMERGENCY OR HOME USE

**ONAN** Electric Plants generate 110-volt, 60-cycle current for homes, farms, cabins and resorts beyond the highline. Lightweight, portable plants cut costs, speed work for contractors. Standby plants protect units against power failure. 400 to 55,000 watts. Gasoline or Diesel-powered. Priced from \$219.00.



**WRITE FOR CATALOG**

**D. W. ONAN & SONS INC.**  
8564 UNIVERSITY AVE., MINNEAPOLIS 14, MINN.

# Do it better with

## STANLEY TOOLS

Add these top quality Stanley and "Yankee" Tools to your tool box or workshop and make the most of your time and talents. They're designed for professionals, yet priced for the occasional user. See them at your dealer's.

**Stanley Smooth Plane No. 4** — A favorite everywhere. Alloy steel cutter, fully adjustable for fine or coarse work. Rosewood handle and knob.

**Stanley Bit Brace No. 923** — Built for the hardest work. All-steel box ratchet, ball bearing head, self-centering jaws.

**No. 100 Russell Jennings Auger Bit.** For fast accurate boring, more holes between sharpenings. Hand-fitted extension lip and spur. Sizes  $3/16$ " to  $32/16$ ".

**Stanley Aluminum Level No. 233** — Designed for accuracy, made to last. Adjustable Vial Holders. Strong rigid truss construction — 24" and 28".



## "YANKEE" TOOLS

**"Yankee" Push Drill No. 45** Ideal for mechanics, hobbyists and handymen . . . makes quick work of boring small holes. Complete with 8 drill points.

**"Yankee" Spiral Ratchet Screw Driver No. 130A.** For driving or drawing screws — saves time and muscle. Quick-return spring repositions handle automatically.

STANLEY TOOLS  
New Britain, Connecticut

THE TOOL BOX OF THE WORLD



STANLEY

Frig. No. 4000.

STANLEY TOOLS  
343 Elm St., New Britain, Conn.

(In Canada: Send to Stanley Tool Co. of Canada, Ltd.,  
343 Stanley St., Roxton Pond, Quebec)

Please send me:

Stanley Tool Guide    FREE Stanley Bit  
I enclose 25c      Brace Folder       FREE "Yankee" Tool  
Book

Name.....

Street.....

City.....

State.....

On December 1, 1951, NASA was established to help minimize the possibilities of pilot error. Every time an accident happens to a naval plane the report is sent to this activity.

When the final recommendations are made to CNO the results are sent to all flying commands. The job of making flying safe does not stop here. The medical section of NASA maintains records of accidents in which pilots or crewmen are injured or killed. Also, by keeping a running analysis of the facts gleaned from reports where aviators have had to abandon their planes by parachuting, using ejection seats, crashing into the water or coming down on land, this section is able to brief all pilots on the latest survival information.

The medical section played a lead role in developing the antiexposure suit worn by aviators.

A flight surgeon in Washington, who acts as liaison officer, reviews all suggestions and keeps the top echelon of the Navy informed of all proceedings.

From time to time the medical section of NASA is ordered to make a statistical check on specific equipment being used in combat, taking into consideration the effect of air and water temperatures and any misuse or reported defects. Of utmost importance are the pilot's recommendations.

Concentrating on reducing the accident rate in naval aviation is the task of NASA. So when you hear those planes zooming overhead, remember that the pilot who would rather use the airways than the highways owes much of his confidence to a little band of deskbound experts. ★★★

## Nylon Knee-Cap Liners Help Arthritis

Nylon, in thin sheets, is being used to line the under surface of the knee cap in arthritic patients. Small stainless-steel staples fasten the nylon sheet to the bone. The resulting low-friction surface permits the joint to move freely and comfortably. Performed on only one knee in the trial operations, the surgery permitted patients to move around without help after six months, needed to get good function in the joint and adequate strength in the thigh muscles. The group of Boston physicians who introduced the method reported success in 58 of 78 operations.

Military planes are getting heavier all the time — a new Navy fighter weighs more than a standard twin-engine commercial airliner complete with its two pilots, hostess, 21 passengers, their luggage and the usual mail load.



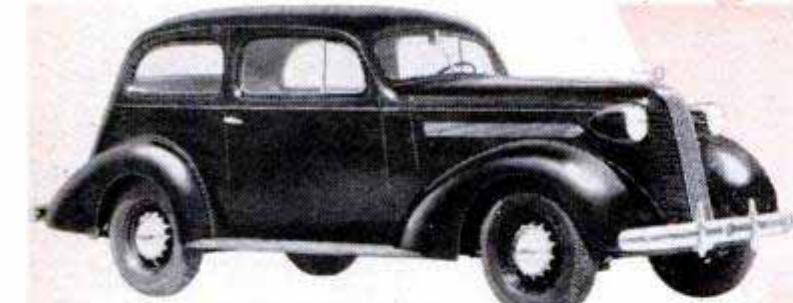
# on every Pontiac ever built

AC Spark Plugs — original equipment on the first Pontiac car — have been Pontiac's partner ever since 1926. AC's patented CORALOX Insulator is one big reason for this preference.

CORALOX gets hot quicker to burn away oil and wet carbon deposits . . . resists deposits of oxide coatings — stays clean longer . . . provides four times greater heat conductivity . . . has three times the mechanical strength . . . offers ten times greater electrical resistance at high temperatures.

For Pontiac owners — and owners of all other makes of cars — these outstanding CORALOX advantages mean — GREATER GASOLINE ECONOMY — SMOOTHER PERFORMANCE — LONGER PLUG LIFE.

**Original Equipment on  
Nearly as Many New Cars  
as All Other Makes Combined**



1936 PONTIAC



1953 PONTIAC



**Buy your  
P&C tools  
from this  
Handy  
Display**

**TIGHTEN 'EM DOWN  
WITH SPEED AND EASE**

Every nut and bolt tightens up faster and easier when you use a P&C Wrench. Perfect fit on heads prevents slipping and skinned knuckles. Tough, special analysis P&C steel can take years of hardest usage.

Send 10c today for P&C's complete 48-page catalog. Has all wanted info on over 300 tools.

**P & C**  
**P & C HAND FORGED TOOL CO.**  
Dept. H-453, Box 5926, Portland 22, Ore.

**Send for this  
BIG NEW  
Hunt's  
WOODWORKERS  
CATALOG NO. 19**

**ONLY  
15¢**

**NEW LOW PRICES**

Offers greatest selection of fine domestic and imported woods—and hundreds of woodworkers items at bargain prices!

You'll save time and money with this big, new catalog. Contains everything wood craftsman needs. Shows 32 rare and fancy woods in color...43 veneer designs...275 scroll patterns...multicolor inlays, overlays, bandings—all kinds of tools, machinery, cabinet hardware, ornaments, mouldings...and pages of valuable tips, ideas, information, instruction. Send for your copy NOW. Only 15¢—refundable on your first order.

**MAIL THIS COUPON--TODAY!**

CRAFTSMAN WOOD SERVICE CO.  
2729 S. Mary St., Dept. A4  
Chicago 8, Illinois

Send me the big, new, money-saving Catalog No. 19. Enclosed is 15¢—refundable on my first order.

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

## Four Wheels Waiting for a Face Lifting

(Continued from page 110)

The easiest way to customize a car is simply to give it a unique paint job. As long as you don't use a stock color, your car will stand out from all the others of the same make and year. Any good paint shop can mix standard metallic colors to create any shade desired. Purple, for one, is an uncommon automotive color and so some shade of purple often is selected for a custom paint job. Applied in 20 to 30 coats, the paint has a depth and transparency that gives it almost the effect of a ceramic finish.

The paint job comes last, of course, if you are making other changes as well. Removing the hood ornament and the chrome decorative stripes calls for welding the attachment holes shut and filing down the rough metal. Then the car is ready for its paint job.

If you want to go a step further, you can give your car a one-piece body by welding all the construction joints together, including the seams that separate the fenders from the body. Next, with copious amounts of body solder, the whole line of each seam is filled in, then filed down to a smooth contour. Painted in a single color, the one-piece body has a finished appearance that sets it apart on the street.

Few of the custom cars have handles on the doors or on the rear deck lid. You can remove the handles, weld the openings closed, and install electric solenoids inside the door panels to pull the latches. The solenoids are operated from inside by push buttons, from the outside by microswitches concealed from view or by an ignition-type lock that fits your ignition key.

The restyling details above are comparatively easy; when you get into major changes you'll need to do some real engineering. Each step brings on problems that you might not have considered when you started to remodel.

Cars equipped with leaf springs can be lowered several inches by placing metal blocks between the axles and the springs that are attached below them, using longer shackle bolts. Channeling is a different procedure and consists of lowering the body on the frame itself. To reduce the height of the body even more calls for literally sawing the body in two, horizontally, removing a band of metal all the way around, then welding the top and bottom together again. Tops are "chopped" in the same way.

Those details are only part of the job.

(Continued to page 286)

# "Pine Panel" your kitchen the low-cost Gold Bond way!



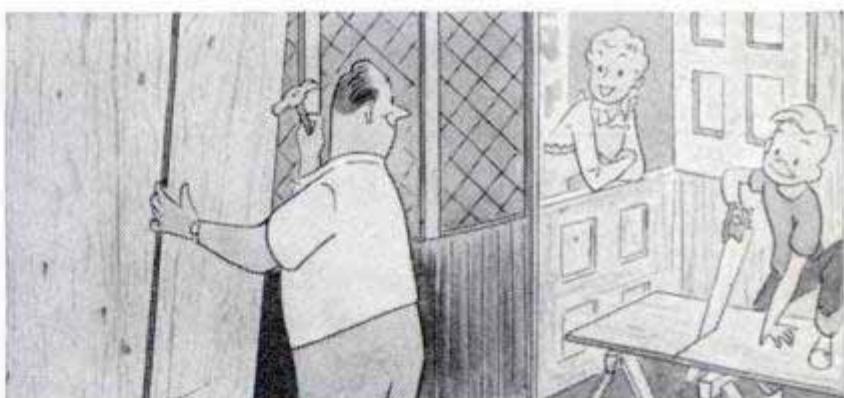
"Here's how this barn of a kitchen ought to look!" My wife told me, brandishing a copy of the Saturday Evening Post with a Gold Bond ad in it. It was a knockout of a kitchen, all right, but I was afraid it was too expensive for us. All that wood paneling made it look like a millionaire's dream.



Our Gold Bond dealer showed us Gold Bond Gypsum Grainboard...the inexpensive wallboard that looks like natural wood paneling. He figured the amount needed—and helped plan the room.



We started by nailing "filler strips" to make the wainscoting and upper wall even, so the final grainboard wall would be flush from top to bottom. The dealer gave us simple instructions to follow.



Then we nailed up planks of Gold Bond Gypsum Grainboard with a finish that looks just like knotty-pine and gives the walls a "fine antique" look. Planks are lightweight and easy to handle. You can saw and nail as easily as wood. Best of all, gypsum is fireproof.



Gold Bond Gypsum Grainboard gave us an expensive-looking kitchen at little more than ordinary wallboard cost. And at the same time, made it easy for us to do our own remodeling.



Besides Knotty Pine, there's new rich-toned Dark Walnut and warm Bleached Walnut. Nails match the finishes. See your local Gold Bond lumber and building materials dealer today—or send 10c for a copy of "Remodeling Magic."

NATIONAL GYPSUM COMPANY  
DEPT. PM-4, BUFFALO 2, NEW YORK

Fireproof Wallboards, Decorative Insulation Boards, Lath, Plaster, Lime, Sheathing, Roofing, Siding, Wall Paints, Textures, Masonry Paints, Rock Wool Insulation, Metal Lath and Sound Control Products.



**TOUGH ONE?**  
**Easy...with Actionrod!**

Want tip action? Actionrod's got it—tip action for accuracy, for distance, for perfect bait control.

Want live action? Get Actionrod—the right tip action for spinning, fly-fishing, bait-casting—in tubular glass or solid, at the price you want to pay, \$4.87 to \$75.00.



Actionrod 4500—The world's only hexagonal tubular glass flyrod, \$75.00.



Actionrod 4400—Custom-made tubular glass flyrod, \$35.00.  
Other models as low as \$11.95.



Actionrod 4266—Tubular glass spinning rod, \$35.00.  
Other models as low as \$11.95.



Actionrod 4160-D—Tubular glass custom casting rod, \$40.00.  
Other models as low as \$9.45.



Actionrod 100—Finest Solid Glass Casting Rod, \$25.00.  
Other models as low as \$4.87.

ORCHARD  
INDUSTRIES, INC.  
HASTINGS, MICH.

**Actionrod**  
America's Favorite Glass Rod

When you channel a body you also must cut away the floor panels and the firewall, among other items, and then refit them. The steering column must now be slanted at a greater angle and reattached to the instrument panel with a handmade bracket. In turn, the seat must be lowered to give you room behind the wheel.

In channeling, too, the body must be cut away inside the rear fenders to prevent the wheels from rubbing. Often it's necessary to cut away parts of the front fenders to give the wheels clearance for turning corners. The bumpers should always be reattached at conventional height so they match the height of the bumpers of other cars. This requires cutting new holes through the body panels to reach the frame.

Styles can be carried to an extreme, of course, and one of the trends in custom cars is the so-called "drive in" car whose body has been lowered so much that its rear almost drags on the pavement. Such a car is impractical for almost everything except going to a local drive-in cafe or theater. In some cases, the rear of one of these cars is so low that a metal skid or set of rollers is attached under the body to help assist it over bumps in the pavement. These cars have been called everything from "unfortunate" to "horrible" but their owners regard them as the best examples of restyling in the world.

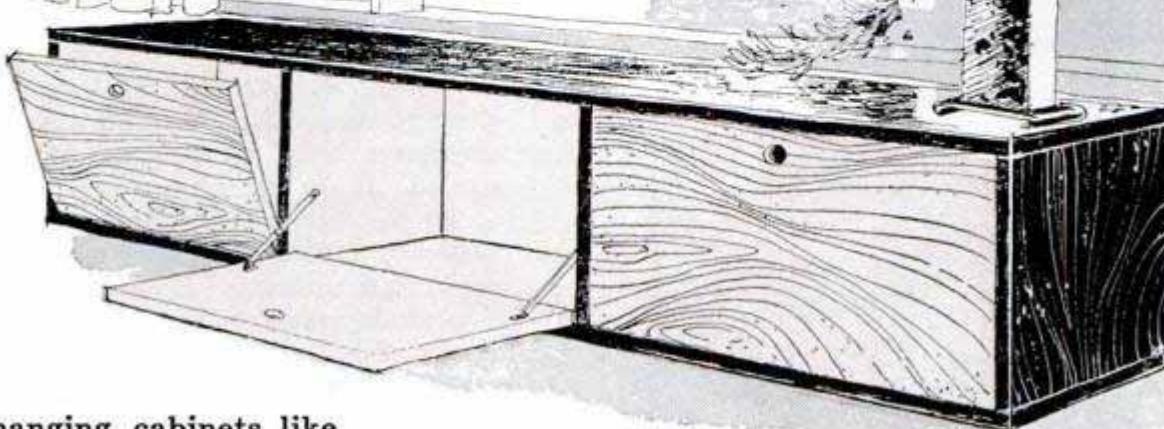
Custom enthusiasts are getting used to seeing the major factories adopt ideas that were first tried out on individual cars. Exhaust stacks through the bumpers, removable hardtops and floating grilles, "frenched" head and tail lights that peer out from the body all started with the customs, they say. Next, possibly, the factories will adopt other custom details such as more push-button controls, rounded corners on doors, decks, and hoods, taillights on the bumper guards and "continental" spare tires mounted on the rear. Meanwhile, the leading designers in the custom field have little to say about future trends. Probably they don't exactly know what the trends will be, except that many owners will continue to seek styles that are different from the stock automobiles of the current year.

If the lines and workmanship are good, the owner of a custom car often makes a profit when he decides to sell. One '49 Mercury that cost \$1500 brought \$3900 a year after its owner had completely changed its appearance. And there's the case of the '40 Merc that brought \$2000 after its owner had bought the original car for \$295, spent \$1000 in revamping its lines, and had driven it for a year. There's always a good market for a good custom car.

★ ★ ★

This is another in the series of contemporary furniture selections, developed for fairly simple home construction by one of America's recognized functional designers.

# Contemporary wall cabinets easy to build and finish



Designed by Kim Obata

Wall-hanging cabinets like those illustrated here are daily becoming more popular with home owners and hobbyists building their own furniture. They add a modern decorative note—are quite functional—occupy no floor space—can be built to almost any desired dimensions.

The design of this model cabinet provides for three separated storage areas. Inside dimensions of each area are 9 inches x 10 inches x 24 inches. Wood is 1-inch birch—either solid or plywood. If plywood is used, solid birch strips  $\frac{1}{8}$  inch x 1 inch (you can buy them at a lumber yard) can be used as facing for exposed edges. Door hinges are practically con-

cealed by their underneath mounting.

Wood surfaces are finished with two different Rez products. Top, bottom and ends are given a coat of clear Rez, with a finish coat of "hand-rubbed-effect" varnish. For contrast, doors and inside areas are finished with any of five beautiful Rez color tones: Cedar, Driftwood, Sage, Redwood, Mahogany, or White (for bleached effects) . . . Rez is easy to apply—can be wiped on with saturated cloth . . . All Rez products seal and prime the surface to which they are applied. Their penetrating

action equalizes the surface density of the wood—preserves beauty of grain by preventing streaks and blotches. Sealing action checks grain raise—minimizes warping, swelling and twisting by keeping out moisture.

At your paint, hardware or lumber dealer—ask for actual "on-the-wood" color samples. Or, write MONSANTO CHEMICAL COMPANY, Merchandising Division, 1700 S. Second Street, St. Louis 4, Missouri. In Canada, Monsanto Canada Limited, Montreal, Toronto, Vancouver.

Rez Rez: Reg. U. S. Pat. Off.  
Copyright 1953, M.C.C.

## COMPLETE BLUEPRINTS AND SPECIFICATIONS AVAILABLE

This specially designed series of wall cabinets can be easily constructed from standard plywood panels. Ideal for books, magazines, other small objects. Flower pots can be set on top. Send 25¢ for plans and specifications. Use coupon.

- MONSANTO CHEMICAL COMPANY
- 1700 South Second Street
- St. Louis 4, Missouri
- Enclosed find 25 cents (25¢) for which please send wall-cabinet plans and specifications to:
- Name.....
- Street.....
- City..... Zone..... State.....

**LAUX**  
**Rez**  
SEALER AND PRIMER  
Clear Synthetic Resin  
A Product of Monsanto Chemical Company

*Do it Yourself  
and Save!*

Assemble Your Own

# BILT-WELL

## Nu-Style Wood Cabinets



Your local Lumber Dealer will assist you in the purchase of Bilt-Well Cabinets.



Anyone can assemble Bilt-Well Cabinets as all parts are prefitted. Cabinets fit directly to wall surface.



You can decorate Nu-Style Cabinets any color. Re-decorate them anytime.

Why wait to buy what you can have now by doing the assembling, the installing and the decorating yourself? Bilt-Well Nu-Style Cabinets are completely machined, pre-fitted, and ready to put together. Don't wait until you "save up" for a new kitchen, do it yourself and save. Sold by leading Lumber Dealers.

CARR, ADAMS & COLLIER CO.

Dubuque, Iowa

Dept. M/3

CARR, ADAMS & COLLIER CO.

Dubuque, Iowa

Please send me BILT-WELL cabinet booklet. Enclosed 25¢  
to cover cost of mailing.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_  
My Lumber Dealer is \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

State \_\_\_\_\_

State \_\_\_\_\_

Build Well  
with

BILT WELL  
WOOD WORK

## Recipe for the Farm Mechanic: Take a Jalopy

(Continued from page 118)

homespun method of helping provide 30-to-1 gear reduction.

The emptied belt is brought back by a  $\frac{1}{4}$ -horsepower motor at the stable's rear end. It's connected, via an old washing machine's gear-reduction box, to a Model-A Ford transmission mounted on the floor. This is run in low gear to bring the belt back at 28 feet per minute.

On the other hand, Vernon Bray, poultryman of West Pelham, Mass., tore up an old Pontiac to raise loads instead of pulling them. He says he's "never had anything more useful" than the homemade freight elevator in his three-story hen house. A  $\frac{1}{2}$ -horsepower motor does the job.

It's regulated this way: The jalopy's entire drive shaft was removed, leaving the transmission hooked to the universal and rear end. One wheel is braked. The other runs a drum that winds the  $\frac{1}{4}$ -inch wire rope serving as elevator cable. When the shift is thrown in reverse, the elevator goes up at a comfortable speed of 12 feet per minute. On its return trip for another load it moves faster with the shift in second.

Besides being a natural-born inventor, the farmer is a keen-eyed imitator. He saw how the conveyor idea worked in grain mills and coal elevators, and began building similar "hired men" to take loads off his own back.

Essentially, the conveyor is a motor running an endless chain, although there are other types—as in Lyons' gutter cleaner and in apple-grading machines—where a belt carries the load. Paddles or lugs spaced along the chain move the manure, silage, hay bales or whatnot. But sometimes the chain itself does the job, as in automatic chicken feeders where the grain is carried along by the moving links.

A paddle-type barn cleaner has appeared on the dairy farm owned by the Gibson brothers near Stuyvesant, N. Y. It cost only \$300 in materials, pays for itself every year by saving over 100 minutes a day, not to mention fork-and-shovel labor. A manufactured cleaner would have cost \$3000 and the Gibsons are certain theirs works better. Their most expensive items were two motors costing \$130 and \$60.

The larger one, three-horsepower, moves 250 feet of chain that circle the barn gutters. It's ordinary  $\frac{3}{8}$ -inch logging chain to which they welded iron bars every two feet. A hardwood paddle is bolted to each

(Continued to page 290)



bar. The conveyor moves 12 feet per minute. The motor's drive is slowed down to that pace by two gadgets—an old Ford rear end and a discarded gear reducer which had been in a bakery's dough-mixing machine.

The manure is brought to a pit where a second conveyor picks it up and moves it 60 feet per minute up a ramp for dropping into the waiting manure spreader. Here the gear reduction is provided by a pulley wheel and another Ford rear end.

Another use for a rear end was found by Lucien Plouffe, West Cornwall, Vt. It gave him a two-ton trailer for lime and fertilizer—not just for carrying the stuff but for spreading it, too. He mounted a hopper at the back on top of which he built a sharp-pointed frame that automatically breaks open the bags of fertilizer that are dropped on it.

At the hopper's bottom he placed an agitator and an eight-finned revolving spreader. It's the jalopy's differential that spins the mechanism.

An old car can do much more than just provide gears. On his homemade feed conveyor, poultryman Harry Van Demark, Walpole, N. H., has a  $\frac{1}{2}$ -horsepower motor lifting three bags per minute to the second floor of his hen house. He got gear reduction this way:

From the motor's two-inch pulley to a Model-T car wheel; from a  $2\frac{1}{2}$ -inch sprocket on the other end of this countershaft to a big outer sprocket wheel which came off an old potato planter; the sprocket wheel is attached to another Model-T wheel and its axle, which works the pair of sprockets carrying the conveyor chain.

The Anderson brothers, Castleton, Vt., take the weight out of lifting milk cans by using a  $\frac{1}{3}$ -horsepower motor to hoist them between floor and cooler. They used two tricks. A rope wound once around the hoisting drum serves as a "clutch." When pulled, it grips the drum and lifts the can. The whole works swings on a wall pivot that once was the drive shaft of an old Nash.

Then there's Wayne Hager, the Vermonter who wasn't satisfied with store hardware when building his new barn. He dug into his jalopy box. On the four doors he installed the handle mechanisms of a 1927 Buick that he had converted into a self-propelled buckrake.

With those handles, the barn doors snap shut easily. Cows can't nudge them open from the outside. The entire barn can be locked like a car—three doors from the inside and the fourth with the key. And when he trips the inside catches, Hager can go about his milking without salesmen barging in to bother him. ★★★



## Save money... step into a Fortune!

• The fashion-right shoes pictured here prove you don't have to pay a high price for complete satisfaction in footwear. Fortunes give you correct styling, prime leathers, and easy-fitting comfort at a practical, moderate price. Your Fortune dealer has styles for every occasion. Save money . . . step into a Fortune!

\$8<sup>95</sup> to \$12<sup>95</sup>  
most styles

*Fortune*  
SHOES FOR MEN



"*Informals*"  
for your  
carefree hours



## SEA SHELL KIT BOAT

only \$39

More than 32,000 in use. Kit includes pre-cut marine plywood and wood parts, brass screws, seam compound, full instructions. A rugged boat, easy to assemble. Free booklet.

**Sea Shells of Branford**  
7480 N. Main Street  
Branford, Conn.

*In Canada*  
Roberts-Ross, Ltd.  
Orillia, Ontario

**3 SPEED HOBBY MOTOR** *Hundreds of uses!*  
For Bar-B-Que's, metal spinning, polishing, winding, etc. Complete with 30" chrome spit; four shafts  $\frac{1}{4}$ " each; 120 volts; enclosed gears.  
5-200-  
4000 rpm.  
Only  
**\$16.95**  
prepd.  
Gov't. cost  
over \$50.  
Send check or money order to:  
Lind Sales Co. 1619½ S. La Cienega Blvd., Los Angeles 35, Calif.



## MARVEL Mystery Oil

- Frees Sticky Valves
- Stops Hydraulic Valve Clatter

Buy it at your favorite gas station

**SILVER SOLDER TORCH & KITS** **\$7.95**  
JOINS ALL METALS PERMANENTLY  
Do your own repairing. KIT includes one tube silver solder paste and 10 5-in. lengths silver solder alloy. Hot-test ALCOHOL TORCH known, 2700° F. flame. Operates in any position, indoors or out. Pint of special fuel included. Complete outfit ready for use \$7.95 postpaid. TORCH alone with pint of special fuel \$6.85. KIT alone \$1.65. Instructions included.  
AMERICAN PRODUCTS CORP., 422 S. Dearborn, Dept. 3-D, Chicago

## HOBBYISTS! SHOPMEN! Special **\$54.50**

PALMGREN "HOBB-E" Rotary, Index, Milling Table

Ideal for Model Parts or Shop Work

Mill-Grind-Drill-Index-Rout curved or straight-Rabbit and Mortise on drill press or lathe. 8" Table, 4" Cross Feed, 360° Rotation, Accurately Graduated. Boits to table. Order NOW! SAVE \$100. Only \$54.50. Less Rotary Feed \$39.75. Write for "HOBB-E" Tool Circular.

CHICAGO TOOL and ENGINEERING CO.  
8365 South Chicago Ave. Chicago 17, Ill.



**ROTO-**  
**GARDEN** **HOE**  
America's Most Usable  
Garden Tool

**2 h.p.**  
(as shown)  
only  
**\$134.**

Useful All  
Year Around  
Complete  
Interchangeability

**MORE WORK —**  
**WITH LESS EFFORT!**

ROTO-HOE offers you the complete garden tool—it Tills, Cultivates, Composts, gives you portable power "most anywhere." The powerful dependable Lauson 2 h.p. gasoline motor rotates 15 specially-hardened teeth at high speed, thoroughly mixing and aerating soil up to 6" deep. You will find that gardening can be a pleasure—the hard work is removed.

**COST?** That's even more surprising—the same low \$134. price established in 1947 for the complete ROTO-HOE basic unit shown above. Attachments do many extra jobs: Mow lawn, trim, edge, mulch, blow snow. All are low in cost too. Investigate this real gardening value. See your dealer for a demonstration; write for free illustrated circular to—

**YEAR 'ROUND** **ROTO-HOE & Sprayer Co., Box 19, Newbury, Ohio**

Make \$20 to  
\$30 a Week

## EXTRA MONEY



## MACHINE SAW FILING PAYS UP to \$3 or \$4 an HOUR

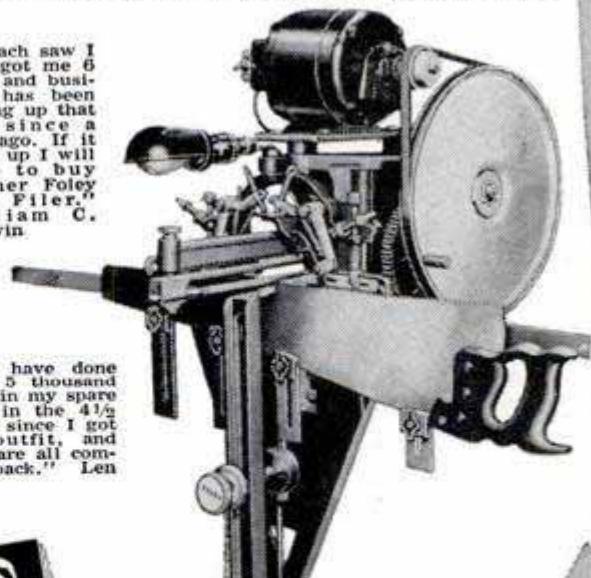
• Turn your spare time into CASH—sharpening saws with a Foley Automatic Saw Filer pays up to \$3 or \$4 an hour. You will find you can make \$20 to \$30 a week in your spare time as a starter.

You can work in your basement or garage—no experience necessary. "The first saw I sharpened with my Foley Filer came out 100%"—writes Clarence E. Parsons. No canvassing—"I advertised in our local paper and got in 93 saws"—says M. L. Thompson. The Foley is the only machine with which you can file all hand saws, also band saws and cross-cut circular saws.

## SEND FOR FREE BOOK "MONEY MAKING FACTS"

Shows how you can get business from home owners, farmers, carpenters, schools, factories, etc. With a small investment, no overhead, no stock of goods to carry, you can get right into a cash business—and possibly later on develop into a full-time repair shop. Send coupon today for Free Book. No salesman will call.

"Each saw I filed got me 6 more and business has been picking up that way since a year ago. If it keeps up I will have to buy another Foley Saw Filer." William C. Baldwin



"I have done 4 or 5 thousand saws in my spare time in the 4½ years since I got the outfit, and they are all coming back." Len Crego



## Send Coupon for FREE BOOK

FOLEY MFG. CO., 416-3 Foley Bldg.  
Minneapolis 18, Minnesota

Send FREE BOOK—  
"Money Making Facts"

Name.....

Address.....

# Here's how for home painters



Coat House Paint for fast touch-up—covers completely in just one coat.

## Simple way to clean hands!

Before painting, 1) rub hands well with linseed oil, 2) scrape fingernails over a cake of soap. After painting you'll find paint practically wipes off. Painting inside? Devoe Wonder-Tones are rubber-base paints—wash hands, equipment and splatterings with water.



**Outside is best!** A paint bucket hanging outside ladder is easier to get at and safer than one hung between the rails. Make your own S-hook by twisting wire coat-hanger as illustrated. Remember—for outside, better use Devoe Trim and Shutter Colors. Last for years.

**Paint a play place for children!** On a section of your basement floor or on a table top, help your kids paint a whole section of country—roads, lakes, fields, rivers. The kids will have fun doing the work, you'll keep the youngsters occupied on rainy days. Best paint to use is Devoe Mirrolac Enamel, easy to apply, fast-drying, durable.



For repainting the outside of your home use Devoe Wonder-1-Coat House Paint . . . gives 2-coat beauty and protection in just one coat, cuts repainting time and costs practically in half. Your Devoe dealer (in Classified Phone Book) will be glad to help you with all your painting needs.



a quantity of Mexican jumping beans."

The shop has long been the haunt of the famous. It has lured by the hour Irvin S. Cobb, Will Rogers, Ernie Pyle, J. Edgar Hoover, Jack Dempsey and others. Among James' most treasured letters is one from Mrs. Warren G. Harding. In it, she told how much pleasure the late President got out of his visit to the shop in 1923—just before he sailed on the Alaskan trip during which he became fatally ill. Bob Ripley, the cartoonist who devoted his life to the unusual, made many trips to the shop.

"Bob's trips were always preceded by a telegram," said James. "He wanted to visit the shop at odd hours when there were no crowds, and he could study the curiosities without distraction. Sometimes his calling hour was six a.m. But I was always glad to open up for Bob."

And every now and then Hollywood, despite its huge prop rooms, calls. Most recent request from a motion-picture studio was for some Japanese fish-net floats—ball-shaped objects made of glass and about 18 inches in diameter. James had them.

A large share of the curios comes from sailors short on spending money in port. They know they can get quick cash from James for the oddities they have picked up around the world. Back in the days when sailors went to sea for months at a time, James let them use his shop as a mail-collecting center. For many a seafaring man, Ye Olde Curiosity Shop was his only home.

The fame of the shop beneath the Coleman Dock ferry terminal is such that letters addressed to it in most any fashion are promptly delivered. Some addresses that gave the Seattle postal authorities little trouble include: "Mr. Coleman Duck," "Curio Shop Under Ferry Building," "Yeo Ocurio Shop," and "Alaskan Eskimo Fur Doll Under Coleman Dock."

Although curios—some of them highly valuable—are stacked around the floor and walls like articles in a country store, the theft loss is small. The proprietor, however, is still puzzled about one theft. For 35 years a 250-pound clam shell—about the size of a small bathtub—was parked in front of the shop, day and night. Recently someone stole it. Now there is another one in front of the shop—bolted down.

James figures his greatest tribute came from Dr. Ales Hrdlicka, the late noted anthropologist of the Smithsonian Institution, who for many years traveled to Alaska and the Aleutian Islands in quest of the remains of primitive man.

"The highlight of my yearly trip," wrote the Smithsonian expert, "is always stopping to browse in Ye Olde Curiosity Shop."

★ ★ ★

# flash!

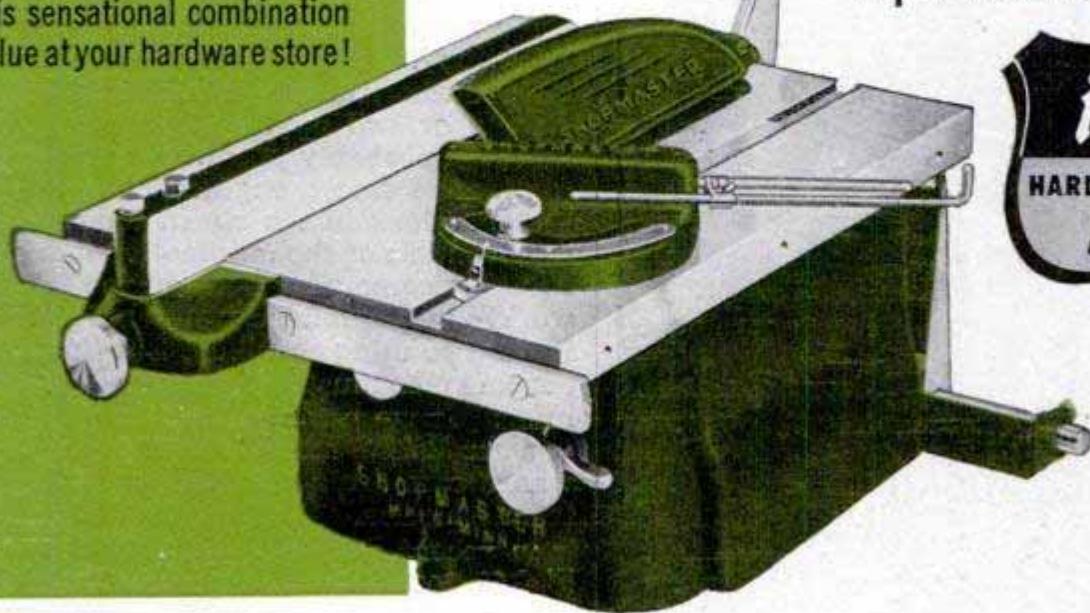
During Hardware Week, see this sensational combination value at your hardware store!

# SAVE \$14<sup>90</sup>

On This Special

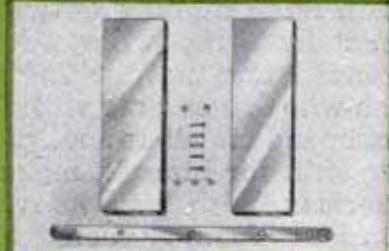
Hardware Week Offer

April 17th thru 25th



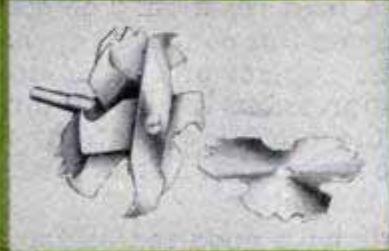
# Shopmaster 8" TILTING ARBOR Circle Saw

## PLUS TABLE EXTENSIONS



Two 5" x 16" table extensions. Complete, ready to attach.

## AND DADO SET



For cutting grooves, tenons, dados with your circle saw.

Here's an extra value power tool for the home hobbyist or professional craftsman! Simple to operate, it provides exceptional accuracy. Outstanding features include sealed-for-life ball bearings, adjustable rip fence, advanced motor mounting, and an unusual new tilting and elevating mechanism that makes positive control easy. Cuts 2 1/2", tilts 45°, 1/2" arbor. Made of lightweight aluminum alloy.

8" Tilting Arbor Saw....\$49.95

Table Extensions..... 5.95 \$

Dado Set..... 8.95

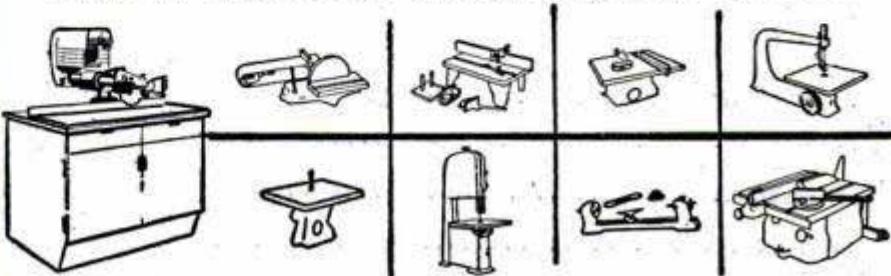
Reg. \$64<sup>.85</sup> Value

**49<sup>95</sup>**

Write for Booklet on Complete Line

SHOPMASTER, INC., Dept. PM-4, 1214 3rd St. So., Minneapolis, Minn.

## OTHER FAMOUS SHOPMASTER TOOLS



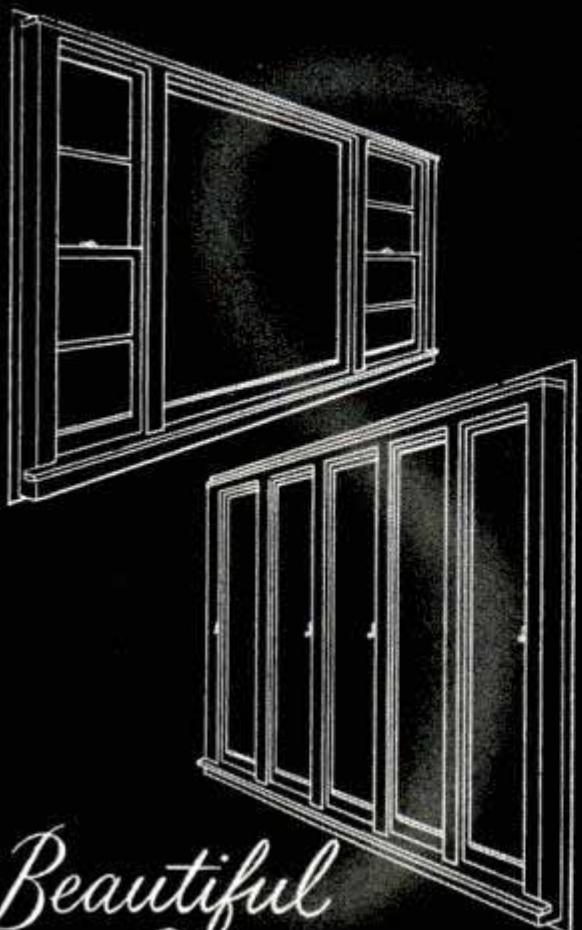
Engineers Look at Foreign Cars"—surely humour of this type is out of place in such a magazine. It was humour wasn't it? I have assumed so because no one who knows anything at all about motor cars could possibly have made some of those statements without bursting into tears—of laughter. . . .

I'm not an engineer—but motorcars are my hobby. First, let me agree with these three authorities of the automotive world on one or two points. The American car industry probably produces, in their price range, the finest engines and automatic transmissions in the world today. Indeed, the products of the automotive industry in America come very high on the list of the world's automobiles for reliability, longevity and running economy. But the attitude of these men must be deprecated when they infer: "If we haven't got it, it's no good." America has as much to learn from Europe, where cars are concerned, as Europe has from America.

In recent years the American industry has far outstripped Europe in the brute power it installs in a vehicle—although let it be noted, not in the power extracted per cubic inch of displacement. Its bodies have become, in most cases, practical, attractive and capacious but its chassis design leaves much to be desired. The statement contained in the interview that Continentals wanted to hurry down a street at 50 to 60 miles per hour, slam on brakes and screech around corners is probably true—it's also true of a large number of drivers on this continent from my observation—the only difference being that the unfortunate Frenchman who drives a car with firm suspension (independent all round, possibly) and has to shift for himself, makes it whilst the American, with his boulevard-ride suspension and "foam-rubber drive," doesn't. Ask anyone who has had to correct a bad skid in a car whose steering takes five turns of the wheel from lock to lock whether he would prefer his steering to be of rack-and-pinion type of  $2\frac{1}{2}$  turns lock to lock, despite road reaction. The sooner the car industry on this continent opens up its mind on the subject of chassis design and removes impressions left by the untrue statement in the interview that the firm European-type suspension affects roadability adversely, the better.

Detroit, et al., have good reason for self-congratulation—but none whatsoever for the smug satisfaction your experts so nobly expounded.

J. Catley,  
160 Queen St.,  
Trenton, Ont.



## *Beautiful* *Silentite* WINDOWS For YOUR Home

### COMPLETE—EASY TO INSTALL

Here's the quick, sure way to have easy-to-operate and weathertight windows for your home! Curtis Silentite wood windows come as glazed, pre-fitted units, ready to install with the very minimum of time. Silentite windows—known as the most weathertight, trouble-free wood windows made today, come in wide variety for every taste and need—picture windows—double-hung windows—casements—awning windows—panel windows—circle windows. Send for free window idea booklet. Have fun choosing windows for your home!



Curtis Companies Service Bureau  
PM4 Curtis Building  
Clinton, Iowa

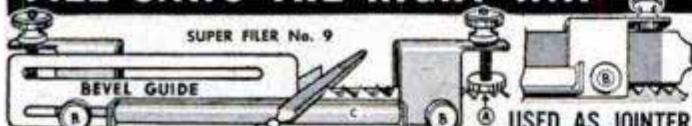
Please send Silentite window  
booklet for building and remodeling.

Name.....

Address.....

City..... State.....

## FILE SAWS THE RIGHT WAY



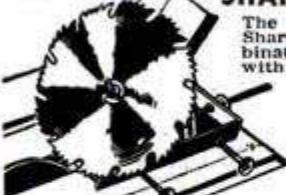
SUPER FILER No. 9

BEVEL GUIDE

USED AS JOINTER

SO EASY with this new filing jig and jointer anyone can now sharpen any handsaw like new! When file hits hardened steel rollers teeth are finished and EXACTLY THE SAME HEIGHT. All teeth cut and saw runs true and smooth. Jig and instructions \$2.95 postpaid. FREE FOLDER.

### SHARPEN YOUR CIRCULAR SAWS



The RIGHT WAY on your own saw table. Sharpens rip, cutoff, hollow ground and combination blades 6" to 10". Saws stay round with correct bevel. Precision made, easy to use. GUARANTEED. Only \$8.95. Includes \$3.00 Grinding wheel.

"TRU-CIRCLE"

SAW SET AUTOMATICALLY SETS TEETH AT 10° OR MORE.

\$2.95

AT DEALERS OR POSTPAID



A. D. McBURNEY, 317 E. 4th St., Los Angeles 13, Calif., Dept. A-28

## FREE CRAFT CATALOG



120 PAGES... Craft Supplies, Tools, Designs, Instruction Books from America's Largest, Most Complete Handcraft Stock.

Send for your free copy NOW!

**GRiffin CRAFT SUPPLIES**

5626-A Telegraph Ave • Oakland 9, Calif.

### make your own Gems 29.50 F.O.B.

The Gem Maker comes complete with all necessary equipment, including a super-charged diamond blade for sawing, and all wheels for grinding, shaping and polishing; also complete instructions. The complete equipment as shown, less motor and belt, for only \$29.50, f.o.b., Burlington, Wisconsin. Write today for information and literature.

**B&I MANUFACTURING CO.**

Dept. S Burlington, Wis.

## BATTERIES!—START

—a factory at home and re-cast junk batteries into new; latest achievement. We supply complete instructions and everything needed. Large daily profits!

BATTERY LABORATORIES, Dept. PM, Minneapolis 4, Minn.

## JITTERBUG • CATCHES MORE FISH

Noisy surface bait. World's best hooker—day or night. Gurgling, paddling action of the double-lobed lip makes fish strike hard. 5/8 oz. or 3/8 oz. or 1/4 oz. spinning size \$1.25. Musky size \$2.00.

FRED ARBOGAST & Co., Inc., 2244 W. North St., Akron 3, Ohio

**FREE** WRITE TODAY FOR YOUR BIG FREE ARBOGAST COLOR CATALOG—FULL OF PICTURES OF CATCHES

Buy happiness for crippled children. Use Easter Seals.

## Holds the Screw!

Drives it too!

Unconditionally  
Guaranteed

## Quick-Wedge SCREW-HOLDING SCREWDRIVER

Ask for it at your Dealer

Kedman Co., 233 S. 5 W., Salt Lake City, Utah

Make your  
**POWER TOOLS**  
work SMOOTHER  
for only 50c

- Dissolves slippery "glaze" on V-belts
- Adds GRIP without tightening belt
- Does same job on your car or belt driven appliance



Have you ever noticed how a sudden overload on one of your power tools will cause the belt to slip? This can result in a disastrous nick or gouge in a valuable piece of wood, and a lot of exasperation if the project is just about completed. This slippage of V-belts is caused by a hard "glaze" that forms on the belt just from constant contact with the pulleys.

Cling-Surface dissolves this glaze and restores the belt to its original pliable condition. A few drops, periodically, is all that's necessary to put any V-belt in top working order and keep it that way for many years.

*Get it at* your service station,  
auto parts or hardware store.

**MONEY BACK GUARANTEE**

**Biggest Oil News In 50 Years!**



## Lubricates and Protects with Amazing "MIST-ACTION"

**NOW!** Big news for mechanics, home craftsmen, gardeners, etc.! New 3-In-One Oil spra-gun is easier, faster, cleaner, more effective!



## Spray Tools To Keep 'Em CLEAN!



**IN SECONDS...**  
spray saws,  
chisels, planes,  
locks, hinges,  
springs, etc.

*No messy rags...  
oily fingers!*



**IDEAL** for mowers,  
shears, clippers, other  
garden tools!

### Contains Special Rust Inhibitor!

**ACTUAL TESTS** by immersion  
show that 3-IN-ONE Oil pre-  
vents rust where other oils fail!

**JUST PUSH VALVE—OUT  
COMES FINE MIST OF OIL!**

3-IN-ONE Oil also available in the familiar  
Spout Cans in 10¢, 15¢, and 25¢ Sizes



**TILE YOUR WALLS**



*...Yourself!*

**with WILSON  
Fine Plastic Tiles**

Now you can bring the easy-to-clean warmth and beauty of plastic tile walls to your kitchen, bathroom, workshop, playroom . . . and do it all yourself—quickly, easily, economically. Choose from the many glowing colors of WILSON exclusive LOCKBACK—the extra-thick plastic tile that locks mechanically to the wall, yet requires less mastic than ordinary tile. Or, for budget installations, use WILSON ECON-O-TILE—just dab mastic on the four dots on the reverse side and press the tile in place. Remember, all WILSON Plastic Tile is guaranteed never to chip, craze or crack, can't fade because the color is all through the tile. You can buy WILSON Plastic Tiles in standard 4 1/4" square bevel tiles and in diagonal, corner, base and other accessory tiles to work out any design. No special kit or tools needed! WRITE for WILSON Tile Booklet P43 and name of nearest dealer.



**WILSON PLASTICS, Inc.**  
Sandusky, Ohio

**REPLACE YOUR OLD WORN  
OUT CHUCK WITH A**



- ENTIRE CHUCK BODY HARDENED
- JAWS NICKEL CHROME MOLY ALLOY STEEL
- INDIVIDUALLY TESTED FOR ACCURACY
- STURDY ONE PIECE CONSTRUCTION

**SOLD BY HARDWARE DEALERS**



**SUPREME PRODUCTS, INC.,** 2222 S. Calumet Ave.  
Chicago 16, Illinois  
The chuck that lives up to its name... SUPREME

**Fishin's Great!**

When You Use...

**Dayton**  
SNAP ON - SNAP OFF  
**FLOATS**

AT LEADING  
DEALERS in U.S.A. and CANADA!

## KING MIDGET

WORLD'S LOWEST PRICED  
2-PASSENGER AUTO



### JUST OUT — NEW CONVERTIBLE!

Operate it for 75¢ per week. Amazing performance. Surprising comfort. All steel construction. Ready to run or assemble it yourself with our bolt together parts. Rider Agents wanted, earn your car free. Send 25¢ for detailed literature or \$1 (refunded first order) for actual assembly book and service manual filled with photos, drawings, specifications, etc.

MIDGET MOTORS MFG. CO., ATHENS, OHIO

## DRAINS Cellars, Laundry Tubs; CIRCULATES Oil; IRRIGATES Gardens

Original "Type P" Pump has 2400 GPH capacity, 360 GPH 75' high, or 1500 GPH from 25' well. Use any 1/8 to 1/2 HP motor. DOES NOT CLOG. 1" intake; 3/4" outlet.

Postage if cash with order. (West of Miss. add 50c.) Motor coupling included.

MONEY BACK GUARANTEE

Also Gear Pumps in all sizes.

LABAWCO PUMPS, BELLE MEAD 7, N. J.

BUILD  
YOUR  
OWN

## ARC-WELDER

We show you how to build NEW powerful welder. No rewinding. Uses most any surplus aircraft generator. Easy to build. 75-300 amps. Complete PLANS 25¢. Send today and we'll include FREE our Big War Surplus & Electrical Catalog.

LEJAY MFG. CO., 1247 LEJAY BLDG., MINNEAPOLIS 8, MINN.  
OR, LEJAY CO., 928-1st AVE. SO. E 47, SEATTLE 4, WASH.



## USE EASTER SEALS

# PAGE Garden Tractors

## 1953 MODELS

More Work!  
Less Cost!

- 2 to 6 HP walking and riding machines • Over 60 attachments available! • Enclosed gear drive with reverse.
- No belts — No chains!
- Also new one-wheel "Bantam" model
- Low Prices — Easy Terms
- 25 years' experience behind every PAGE — fully guaranteed!

Shows over 60 attachments!

Free Catalog

Plows,  
discs, tills, seeds,  
cuts grass and weeds,  
and many other jobs!

**PAGE** 1804 S. 81st St.  
Milwaukee, Wis.

Please read this letter  
carefully and see why..

I offer to the public  
for the first time  
custom-made Hans Jenson

## SWEDISH WHITE ENAMEL!



Permit me to introduce myself, good American friends. I am Hans Jenson, a painter by trade. In Sweden, where the finest paint in the world is custom-blended by master craftsmen, it is an important thing to be a painter. I follow in the footsteps of my father, and his father before him. Fortunate am I, that they handed down to me the jealously guarded secrets of their craft.

For many years, I have worked in many of Sweden's finest homes. People come to me from all over the land because of my own special White Swedish Enamel. It is not like any other Enamel. My Hans Jenson Swedish Enamel dries to a rich white gloss that becomes even whiter each time it is washed. My paint doesn't chip or peel. My friends and customers marvel at it, and for a long time encourage me to offer it for sale. They know there is no other Enamel so good for walls, woodwork, furniture, boats, exterior or interior finishes and wherever fine white enamel is required.

At first, I hesitate. After all, I cannot produce Hans Jenson paint in large quantities. And because I use only the finest raw materials, I think Hans Jenson Swedish Enamel will be too expensive for commercial success.

But my friends persuade me. They tell me people will be willing to pay a little more for this marvelous Enamel. (After all, it is more economical in the long run.) And so I decided to make a limited quantity and offer it to you, the readers of this magazine. It costs \$3.70 per quart. If you need a gallon, I charge \$12.50. I pay for the postage. I guarantee you will be satisfied, or your money back. I hope you will write soon. I can only make small quantities, and I do not want you to be disappointed.

Sincerely yours,

*Hans Jenson*

Available in super gloss or soft satin sheen.

P.S. Please write directly to me, Hans Jenson

Dept. PM-1

2256 N. Elston  
Chicago 14, Ill.

Masonite Week-end Project

You  
can make this  
modern, low-cost  
linen closet  
with  
**MASONITE**  
Preswood

Send for  
free plan!



Now! Put wasted space to work! It's easy to build this efficient closet with handy slide-out drawers. An old closet, a dead-end hallway, an empty corner—build it almost anywhere. Masonite  $\frac{3}{16}$ " Tempered Preswood® will make it stronger, smoother working and longer lasting.

No splinters, no snagging of fabrics with this tough, grainless all-wood hardboard. Easy to cut and fit with ordinary tools. Smooth surface takes paint, enamels and holds them!

Masonite Preswood can help you do many jobs in your spare time—and for so little! Send for complete information and free plans of linen closet. Mail today!

See your local building materials dealer for  
**MASONITE PRESWOOD**

A type and thickness for every job!

- Standard Preswood— $\frac{1}{8}$ ,  $\frac{3}{16}$ ,  $\frac{1}{4}$  and  $\frac{5}{16}$ " thick.
- Tempered Preswood—Black or brown.  $\frac{1}{8}$ ,  $\frac{3}{16}$ ,  $\frac{1}{4}$  and  $\frac{5}{16}$ " thick.
- Tempertile®— $\frac{1}{8}$ "
- Duolux—both sides smooth! Standard or Tempered. 4-ft. and 5-ft. widths.  $\frac{1}{8}$ ,  $\frac{3}{16}$  and  $\frac{1}{4}$ " thick.
- Leatherwood— $\frac{1}{8}$ "
- Panelwood— $\frac{3}{16}$  and  $\frac{1}{4}$ " thick.

Better Hardboards for Better Home Projects

# MASONITE® CORPORATION

Dept. PM-4, Box 777, Chicago 90, Ill.

"Masonite" signifies that Masonite Corporation is the source of the product

Please send me free plans No. AE-269 for linen closet and also your brochure giving more information about Masonite Preswood.

Name.....

Address.....

City..... Zone.....

County..... State.....



## BE YOUR OWN **DR. FIXUM!**

Cure "Home Appliance" Ills  
**Wonder Compound #57**

RENEWS, REVITALIZES, RECONDITIONS  
sticking, vibrating SEWING MACHINES; sluggish, slow, inefficient ELECTRIC FANS; rusted, clogged, powerless VACUUM CLEANERS; sticking STORM WINDOWS, FARM and GARDEN equipment, POWER TOOLS, etc.

### Wonder Compound #57

LUBRICATES, POLISHES, CLEANS, FRICTION PROOFS  
1001 USES AROUND YOUR HOME

WONDER COMPOUND KIT CONTAINS:

Can of Wonder Compound #57  
Can of Wonder Lubricant #58  
Brush, 2 Screwdrivers  
Full year's supply.  
Easy-to-follow instructions

(Stops Motors from Using Oil)

**\$4.95**

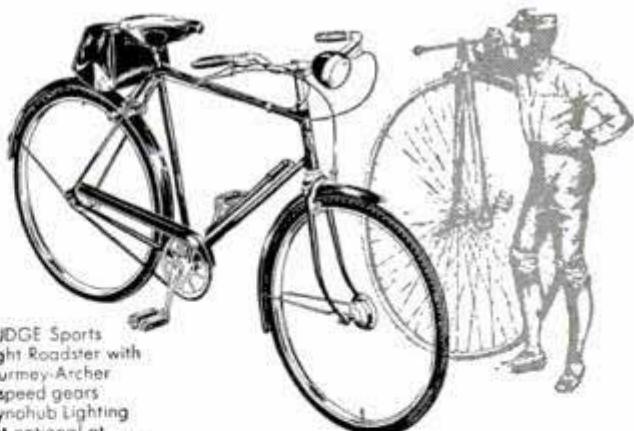
Check or  
Money Order  
—Shipped  
Prepaid.

100% Satisfaction or 100% Refund

**WONDER COMPOUND**

6103 S. Halsted Street  
Chicago 21, Illinois

Compare... and you'll decide



RUDGE Sports  
Light Roadster with  
Sturmey-Archer  
3 speed gears  
Dynohub Lighting  
Set optional at  
extra cost. \$68.50

Here is the bicycle that has no equal... Since 1869, RUDGE's engineering staff has sought ways to produce the perfect bicycle—the true "thoroughbred" in looks and performance!

**RUDGE**



"BRITAIN'S BEST BICYCLE" SINCE 1869

For free catalogue and dealers' names, write to: Raleigh Industries of America, Inc., Dept. P 669 Boylston Street, Boston, Mass.

## Take The "PAIN" Out of PAINTING!



Basements . . .



Fences . . .



Furniture . . .

### USE A BECKER CO<sub>2</sub> SPRAY GUN

Completely self-contained—No "Extras" to Buy! Sprays: Paints, Oils, Varnishes, Insecticides, etc.

Men! Women! Here's the easy way to lick those tough, tedious, tiresome paint jobs. Becker Spray Gun is fun to use, requires no electricity or compressors—pressurized by low-cost CO<sub>2</sub> cartridges each sprays up to 21 oz. containerful. Used 5 years successfully in industry.

SEE YOUR DEALER! If he cannot supply, order direct for postpaid shpt. Extra cartridges 10 for \$1.

**SULLIVAN-BECKER CO.**  
Dept. 113-D • Kenosha, Wis.



ONLY  
**\$15.95**  
with 3 cartridges

## TOOLS AT WHOLESALE

### PROFESSIONAL MECHANICS HAND TOOLS

Farm, Household and Special Tools

### TOP QUALITY, FACTORY GUARANTEED

Write Today for  
**FREE CATALOG**

**MECHANICS CO-OP**  
Dept. X      Oakland 8, Calif.

### Extra big disc sander

COMPARE size, quality, features! 5-in-1 **SHOPSMITH** has 12" disc, large tilting table, miter gauge, rip fence. Converts to saw, lathe, vertical and horizontal drill. Write for FREE catalog.

**SHOPSMITH**, Dept. 238-B  
12819 Coit Rd., Cleveland 8, O.



**SHOP  
SMITH**

**Use Easter Seals. Help Crippled Children.**

### SET-UP - KNOCKDOWN SAWHORSE with *Jiffy* BRACKETS



No nails or bolts... use 2x4's for legs, 2x4 or wider for crossbar. Rugged, sturdy, easy to move, saves storage space. Sold by hardware and building material dealers, or order direct.

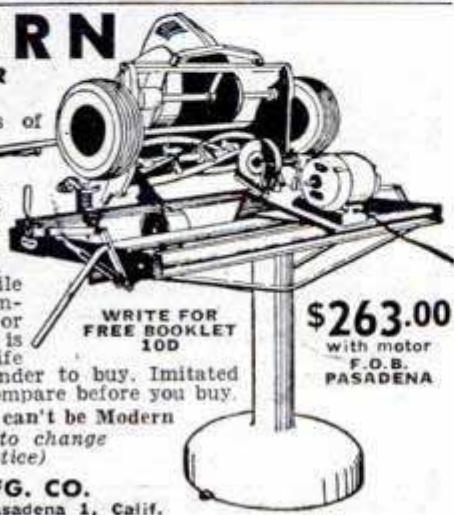
GRAND HAVEN STAMPED PRODUCTS CO., Grand Haven, Mich.

## MODERN

### LAWN MOWER SHARPENER

Service departments of leading Lawn Mower manufacturers use the Modern Lawn Mower Sharpener. One lever moves lawn mower into grinding position. Gasoline and oil remain in engine while sharpening, no dismantling of wheels, roller or handle. The Modern is a precision bed knife grinder—no extra grinder to buy. Imitated but never equaled—Compare before you buy. If it isn't a Modern it can't be Modern.

(Prices subject to change without notice)



WRITE FOR  
FREE BOOKLET  
100

**\$263.00**  
with motor  
F.O.B.  
PASADENA

**MODERN MFG. CO.**  
160 N. Fair Oaks - Pasadena 1, Calif.



It costs less  
than you'd think  
to start a

## Money Making arc welding business

### HOBART

offers you the most  
welder for your money.  
PROFITS pay for it!



Portable Electric  
Drive DC Welder



250 amp. portable  
Gas Drive DC Welder

### A golden opportunity!

Welding is today's fastest growing, biggest paying trade. Every town needs a shop badly—potential is unlimited.

### Repair, Construction, Production

Now's the time to get into this big pay field—and Hobart can help you as they have thousands of others. All you need to set up your own business is one Hobart Welder. It's "simplified" for easy learning, goes anywhere, handles any job, stands roughest usage. Quickly pays for itself in extra profits. Available in complete line of gas or electric models to suit your needs. Check coupon today for full profit details.



200 amp. "Bantam  
Champ" Elec. Drive

### Get these valuable books on welding

TEXT AND LESSONS BOOK. Covers every phase of welding. 544 pages, over 600 illustrations . . . \$3.00.

LESSONS BOOK. Simplified, self-taught operator's training course. 200 pages, fully illustrated . . . \$1.00.

PRACTICAL DESIGN. Hundreds of weld ideas in design form. 3 vols. of 100 designs each. 1 vol., \$3.50; set of 3 vols., \$10.00.

### HOBART BROTHERS COMPANY

Box M-43, Troy, Ohio

"One of the world's largest builders of arc welders"



**Use the  
Coupon!**

**free**

"Welder's  
Vest Pocket  
Guide" . . . A  
valuable, new  
booklet you  
should have.

HOBART BROS. CO., Box M-43, Troy, Ohio  
Send me complete details on items checked.

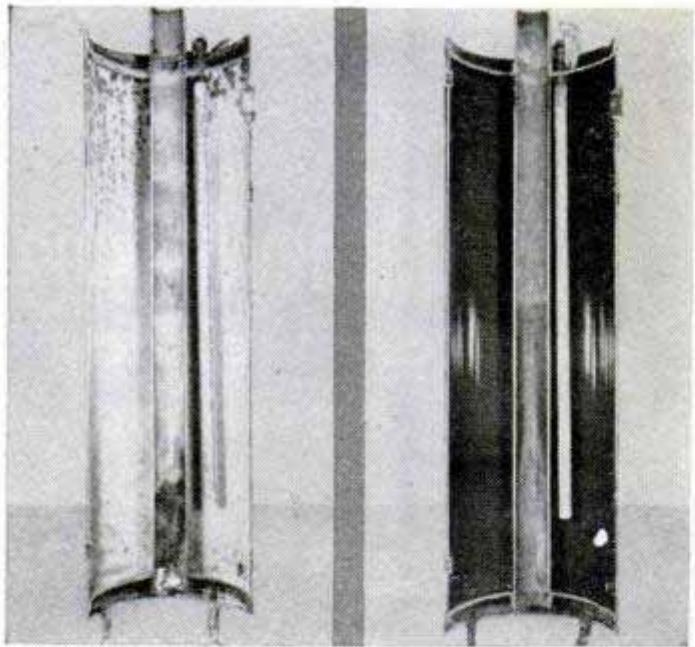
- Electric Drive Welders     Gas Drive Welders     Hobart Trade School.
- Send books checked     Text and Lessons
- Lessons. Practical Design:     Vol. 1
- Vol. 2     Vol. 3     Set of 3 vols.
- Cash enclosed     Send C.O.D.

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_



#### ORDINARY WATER HEATER INTERIOR

Unretouched photo shows how rust eats away unprotected metal in just one year of use. Note deep rust pits!

#### PERMAGLAS WATER HEATER INTERIOR

Unretouched photo shows that Permaglas glass-surfaced steel tank does not rust... because glass can't rust.

## Be Safe from

**RUST**

With an A. O. Smith

# Permaglas®

Automatic Water Heater

If you could see the insides of an ordinary water heater, you'd shudder to think of using water heated in so rusty a tank.

To be safe from rust, buy an A. O. Smith Permaglas water heater. Enjoy all the clean, hot water you need for health protection and cleanliness. Permaglas costs no more than ordinary water heaters. Its glass-surfaced steel tank can't rust because glass can't rust!

Write for "Murder . . ." booklet of pictured facts.—A. O. Smith Corp., Dept. PM-453, Kankakee, Illinois. International Division: Milwaukee 1. In Canada: John Inglis Co., Ltd.



A. O. Smith also manufactures Gas Conversion Burners, Home-heating Boilers, Warm Air Furnaces and Commercial Water Heaters.



# A.O.Smith

PERMAGLAS-HEATING PRODUCTS

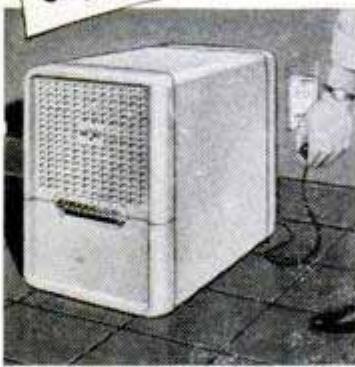
# DAMP BASEMENT?

Plug in the amazing

## FRIGIDAIRE

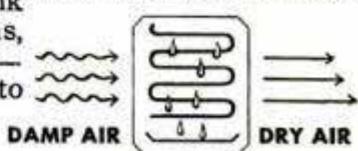
Electric  
Dehumidifier

Only 18 $\frac{1}{4}$ " high —  
20 $\frac{1}{2}$ " long — 11 $\frac{3}{4}$ " wide



Plug this amazing device into any convenient outlet, and presto — your moisture worries are over for good! Without muss, fuss or messy chemicals. Positively controls moisture in linen closets, basements, play-rooms, store rooms, bank vaults, shipping rooms, workshops, warehouses — or any closed area up to 8,000 cu. ft.

#### HOW DEHUMIDIFIER WORKS



**See your Frigidaire Dealer** for further details. Or write Frigidaire Division of General Motors, Dept. 2032, Dayton 1, O., for free descriptive folder. In Canada, Toronto 13, Ont.

Built and backed by General Motors

Say You Saw It in Popular Mechanics

**—FOR HOME OWNERS—**  
*who take special pride in their lawns!*



### POWER MOWER

Handy, new

### LAWN DIAL

Helps you plan lawn operations from season to season... spot and control lawn "pests"... Tells you just what to do to get the most out of your power mower.

Mail coupon

THE MOWAMATIC CORP. Dept. PM-43

Subsidiary of Food Machinery & Chemical Corp.

Port Washington, Wisconsin

Gentlemen:

Please send me your new "Lawn-Dial". I enclose 10¢ to cover postage and handling costs.

Name \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

## BUILD YOUR OWN LAWN CHAIRS

Build 'em yourself with Easi-Bild full-size patterns...and finish with amazing Plastic Wood. Simply trace pattern on wood, saw and assemble. No special skill needed. Plastic Wood handles like putty, hardens into wood! Can be sawed, sanded...takes paint and other finishes!



EASI-BILD®  
Pat. No. 32-25c



IN CANS  
OR TUBES

Get Pattern #32 at  
any hardware  
counter. Or send  
25¢ to: Plastic  
Wood, Box 215,  
Pleasantville, N. Y.

*P.S.* Pulleys, hinges, locks and latches  
work better with **3-IN-ONE OIL**

Make Money  
SELLING  
Eshelman  
Tractors  
and doing  
GARDEN  
WORK



## HASTINGS

STEEL-VENT PISTON RINGS  
The best money  
you can spend on your car!

## More Local Plants Needed to Make Cement Drain Tile

Hundreds of local plants are selling millions of dollars' worth of cement drain tile every year. But demand is getting bigger, and opportunities are open for hundreds more.

Farm drainage, reclamation projects, highway construction—these and other sources are creating a large market. It can be most economically supplied by compact, local plants.

### Outstanding Manufacturing Opportunity

Champion drain tile machine is deliberately designed to supply compact, low-investment, tile-making equipment. Makes finest tile possible—dense, truly round, and shale proof. Better than clay tile, yet can sell for less because local production saves freight and distribution cost. But project possibilities are high. Business requires no previous experience—no skilled labor—no special building. Equipment available on easy terms. Full information on the cement tile business and equipment are given in the Drain Tile Book—free on request.

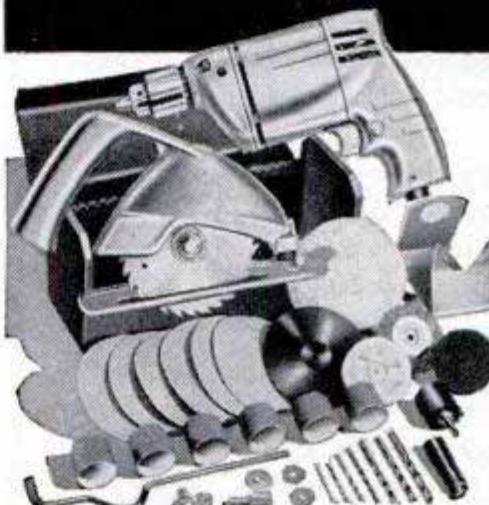


**Concrete Equipment Company**

E3 522 Ottawa Ave., Holland, Michigan

# PLUS POWER PER POUND

*...and the price  
is right!*



**\$495**

1/4-inch  
DRILL  
& SAW  
KIT

Rugged pistol-grip drill with gear-type chuck. Special-duty design for ample power. Ball thrust-bearing takes drilling load. Forced ventilation. Drill saw attaches to drill, cuts up to 1" deep, angles from 90° to 45°. All attachments to grind, sand, polish, mix paint. Durable "hip-roof" steel case. Model 1440-GDK. Complete . . . . . **\$44.95**

**PET**  
POWER TOOLS

### 1/4-inch ELECTRIC DRILL

Same as with kit. Choice of pistol grip (Model 1440G) or saw grip (Model 1490G).

**\$24.95**

Either drill but with hand-type chuck . . . . . **\$21.95**

Maximum power per pound of weight is a plus you get with PET Power Tools. That's why they're so easy to work with, so fast on every "do-it-yourself" job. Another PET Power Tool extra is low price. Compare. Convince yourself that your one best buy in power tools is PET.

Portable Electric Tools, Inc., 320 W. 83rd St., Dept. PM-43, Chicago.  
In Canada: Portable Electric Tools, Ltd., 452 Birchmount Rd., Toronto.

# FREE 24-page book tells you how to paint *like an expert*



You can do a fine home painting job the very first time you try! It's easy when you know how—and this FREE book tells you. Here are the simple, basic facts about quick, streak-free paint jobs on furniture, walls, your whole house inside and out. Yes, it's easy to do the job yourself...and do it right.

## USE BAKER BRUSHES AND FEEL THE DIFFERENCE!

You'll get smooth, streak-free results with a Baker Brush because it's scientifically designed for better painting.



**BAKER BRUSH CO., INC.**  
83 Grand Street, New York 13, N.Y.  
Please send me your FREE book, "How to do a GOOD Paint Job."

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

Zone \_\_\_\_\_ State \_\_\_\_\_  
(Please Print)

# Buy the Best...WISS!



## for all sheet metal cutting

### WISS Metal Master Compound Action Snips

#M-3. Easily cuts 18 gauge sheet metal. Cuts curves and circles as well as straight. Ideal for the home workshop. \$4.25. Rubber grips recommended, 60¢ extra.

### WISS Straight Cut Snips

#9. Crucible steel inlaid blades. The basic snips for straight metal cutting. Gun metal handles. Overall length 12½". \$5.25.

### WISS Combination Snips

#V-13. Solid steel, with gray japanned handles. Cuts curves and irregular shapes with ease. Handy pocket size. 7" long. Accurately tempered jaws and strong bolts. \$1.85.



Prices slightly higher  
Denver and West

Quality for more than a Century

J. WISS & SONS CO. • NEWARK 7, N.J.

FOR  
TRIPLE  
PROTECTION

INSIST ON

**WOLF'S HEAD  
MOTOR OIL!**

• 100% Pure Pennsylvania • Scientifically Fortified

WOLF'S HEAD is the richest, toughest, "oiliest" oil that ever flowed through an engine. It's scientifically fortified . . . cleans engines safely and keeps them clean . . . provides triple protection . . .

- ★ Protection against unnecessary wear
- ★ Protection against engine deposits
- ★ Protection against corrosive acids

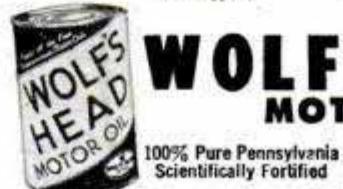
WOLF'S HEAD is 100% Pure Pennsylvania Oil—specially refined and scientifically fortified. If your car requires heavy duty oil, you'll find WOLF'S HEAD Heavy Duty is superior.

**FREE!** "Guide to the Weather" Folder shows how cloud formations forecast the weather. Write for a copy today.

40¢ per quart plus tax

WOLF'S HEAD OIL REFINING CO., INC.  
Oil City, Pa.

New York 10, N.Y.



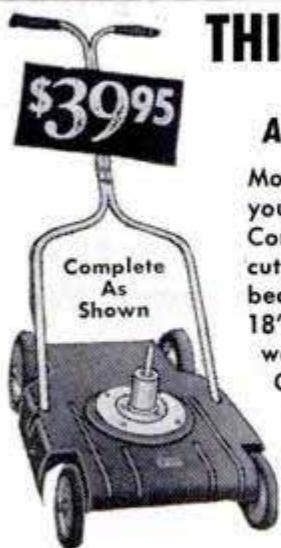
**WOLF'S HEAD  
MOTOR OIL**

100% Pure Pennsylvania  
Scientifically Fortified



Member, Penna. Grade  
Crude Oil Association

# Make Ur-Own ROTARY TYPE POWER MOWER



**\$39.95**

**THIS IS NOT A KIT**

**A Complete Mower  
Assembled As Illustrated**

Model 53M Keen Mower. Add your electric motor or gas engine. Concealed blade for safety, 3 cutting heights, 1½" to 3½". Ball bearing semi-pneumatic wheels. 18" cut. Cuts to within ½" of sidewalk. Weight 48 lbs. America's Greatest Power Mower Value.

Order Now.

Shipped  
F.O.B., K.C.

Send check or money order

229 S.W. BLVD.

Dept. PM4

KANSAS CITY, MO.

**ATLAS KEEN MOWER**

## MAKE YOUR OWN TRAILER

or shop wagon with this sturdy aero. tire, tube and wheel with bearings for \$8.50 complete. Tires OD 10½" high, 3½" wide. Bore for axle 5/8".

### WRITE FOR FREE CATALOG

on other sizes  
with stub axles  
and other farm  
inquiries invited.



**HARMO TIRE & RUBBER CO.**

Part #218

804 HAMMOND BLDG.  
Dept. PM  
DETROIT 26, MICH.

AT  
YOUR  
DEALER

**BULL TOOLS**

Largest mfrs. of elec. drill accessories  
Bertram Engineering Co., Kansas City, Mo.

## CASH IN YOUR SPARE TIME

UP TO \$40 A DAY IN YOUR OWN BUSINESS. Easy to start repeat cash business at home with the New BELSAW...sharpening and setting circular saws, grinding planer and jointer knives. Low Cost, only \$15 down...Start to work the day your BELSAW arrives. No experience needed. Hundreds of jobs in your neighborhood. Send Today for Free Book, "Lifetime Security".

**BELSAW MACHINERY CO.**

3705 Field Bidg., Kansas City 11, Mo.



FREE BOOK  
TELLS HOW

# 2 DRILLS in 1

**\$11.95 post paid**

This attachment gives you two drills in one. It converts any 1/4 inch electric drill to 1/2 inch capacity. Reduction gears reduce the drill speed 5 to 1, the average speed of a 1/2 inch drill, and thereby increases the power. Absolutely indispensable for all shop work and home craftsmen.

**G. M. CO. MANUFACTURING, INC.**  
1308 43rd AVE.  
LONG ISLAND CITY 1, NEW YORK

Send check or Money Order  
• Satisfaction guaranteed  
• Order yours now

# All New Yorkers Eat in Night Clubs!

—OH, YEAH?



People get the strangest ideas.

"New York's a great place to spend a few days," visitors say, "but how do you keep it up—going out night after night?"

New Yorkers don't. Most of them live as normally as people in Terre Haute or Peoria.

Millions of motorists think of Macmillan Ring-Free Motor Oil only as a cleanser of carbon, or as a special brand of oil to use in breaking-in a new engine.

It has quite rightly gained a reputation for being a great oil to use in breaking-in a new car. Or for removing carbon and cleaning out the engine. And reducing ping.

But far more important is that its regular, normal, continuous use will save you so much on gas. By reducing engine friction it saved an average of 8% of gas in tests made in hundreds and hundreds of cars.

Over an average change period that means enough saving to pay for a refill of Macmillan Ring-Free Motor Oil.

### LOOK AT THESE FIGURES:

Gasoline—average cost per gallon . . . . . 25¢

8% saving on 25¢ (.08 x .25) . . . . . 2¢ per gal.

Average oil drain period . . . . . 1500 miles

At 15 miles per gal. (gas consumed) . . . 100 gals.

2¢ per gal. saving on 100 gals. of gas . . . \$2.00

This \$2.00 pays for your oil drain  
of 5 quarts at 40¢ per quart.

Start using Macmillan Oil for any reason, but keep on using it month in and month out because it removes carbon, reduces ping, helps keep valves from sticking, reduces engine friction, saves on wear and tear and repair bills and makes your car stay newer longer.

Use Macmillan Ring-Free Motor Oil regularly because it pays for itself in the gas it saves.

*R. S. Macmillan* President  
MACMILLAN PETROLEUM CORPORATION  
530 W. 6TH STREET, LOS ANGELES  
624 S. MICHIGAN, CHICAGO • 50 W. 50TH STREET, NEW YORK

### CLIP OUT AND MAIL TODAY!

R. S. Macmillan, President, Dept. P2

Macmillan Petroleum Corporation

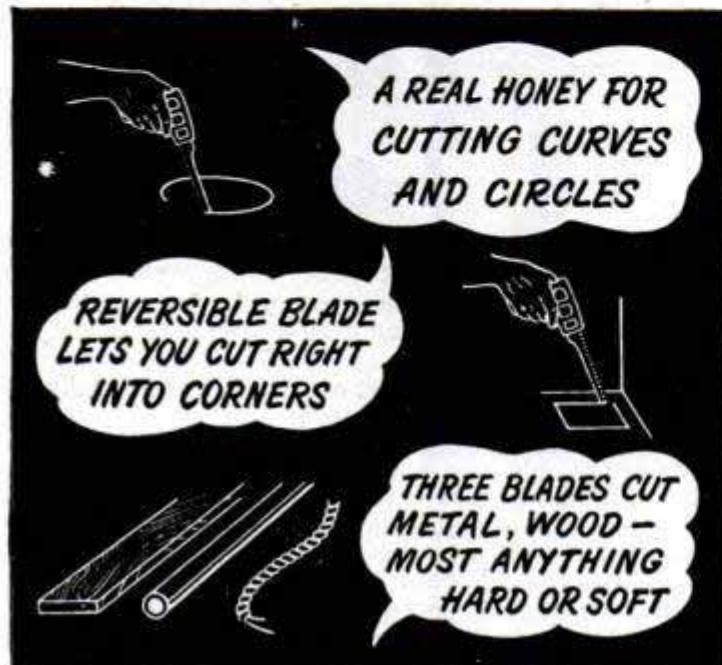
530 West Sixth Street, Los Angeles 14, California

Please send me your folder—"The Oil that Pays for Itself in the Gas It Saves." Also tell me my nearest Macmillan Oil dealer.

Name \_\_\_\_\_

Address \_\_\_\_\_

# IT'S NEW! IT'S HANDY! IT SAWS MOST ANYTHING!



... and it's yours at a special low price for Hardware Week

Here's the handiest saw ever. 9½" long, it has three quickly interchangeable blades for cutting anything from Balsa wood to mild steel and cast iron. It's ruggedly built to Millers Falls traditional quality standards. You'll save time and work on countless jobs with this new, "cuts anything" Nest of Saws. Get one at your hardware dealer's while it's available at the special Hardware Week price of only 69¢.

(Price slightly higher in West.)

MILLERS FALLS COMPANY, Greenfield, Mass.

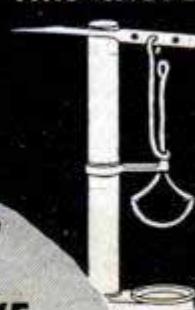


## Annoyed by a Running Toilet? Eliminate Troublesome Lift Wires and Fancy Tank Balls—Here's How:

NEXT TIME your toilet won't stop running, LIFT the LID and LOOK at what really causes the trouble. Practically all tank balls are operated by lift wires. When these wires corrode, bend, or lock, the tank ball can't drop to the valve seat. A new set of lift wires is only a temporary solution—it's only a matter of time until the same trouble shows up again. Nor is a new, fancy, gadget-type ball the answer.

Best solution is to replace the lift wires completely with an "ALERT" Friction-Free Flush Valve, a device which is fast becoming standard equipment with plumbers themselves. If you're handy with pliers and screw-driver, you can install an "ALERT" in ten minutes. And once installed, it's guaranteed by the manufacturer for three years. Fully tested and approved by the American Society of Sanitary Engineers, the "ALERT" has eliminated the running toilet problem for over 4,500,000 satisfied users. Only \$2.15 (slightly more in West) at your plumbing or hardware merchant.

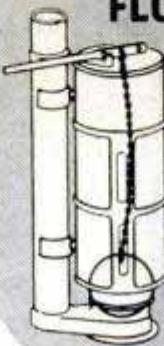
### THIS CAUSES THE TROUBLE



Friction keeps tank ball hanging above valve seat, permitting water to run.

### "ALERT" FLUSH VALVE

#### Eliminates Friction



"ALERT" cylinder guide and kink-less chain permit "ALERT" round ball to reach the valve everytime. "ALERT" round ball seals in any position.

If "ALERT" is not available locally, send \$2.25 (cost and postage) to Ardmore Products Co., Dept. 453, Ardmore, Pa. In Canada: Fox Agencies, Ltd., Port Credit, Ont.

*Don't be a  
"Bathroom Jiggler"!*

## BUILD YOUR OWN ARC WELDER OR LIGHT PLANT



### D-C GENERATOR

**\$15.50** Instruction included. Rated 200 Amps. 28 Volts. 2500 R.P.M. Ship. WL approx. 50 lbs. Stock No. 707.

PRICE F.O.B. K.C., MO.

CONVERTS TO ARC WELDER 200-250 AMP.  
OR LIGHT PLANT CAP. LOAD 5000 WATTS



**CUNO OIL FILTER**—Brand New Aircraft type. Filters oil without cartridge replacements. Just turn handle and cartridge is clean. Standard  $\frac{3}{8}$ " inlet and outlet ports to accommodate 12 gallons per minute. STOP CHANGING OIL. **\$4.95** postpaid. Instructions incl.

Send check or Money order.

GENERAL SALVAGE CO.

DEPT. 743, 2922 E. 27 ST., KANSAS CITY, MO.

**DOES A BETTER JOB**  
**CULTILLER ROTARY TRACTOR**  
**BUY DIRECT FROM MFR. and SAVE!**

FULLY GUARANTEED!  
CULTILLER CO. 162 Church Street, Dept. 66 New Brunswick, N.J.

• PLOWS • HAULS  
• ROLLS • MOWS  
• CULTIVATES  
• SICKLE-BARS, ETC.

Fully Guaranteed! Smooth, Powerful Operation. Women and Children Can Handle It!

SEND TODAY FOR VALUABLE FREE BOOKLET WITH BIG SPECIAL DISCOUNT OFFERS!

## "SNOOPER" GEIGER COUNTER



**2495**  
COMPLETE

PRECISION RADIATION INSTRUMENTS  
2235 PM S. LA BREA, LOS ANGELES 16, CALIF.

Super-sensitive! Only  $1\frac{1}{4}$  lbs.! Fits pocket—uses flashlight battery. Find a fortune in uranium. Order Now! Send \$5.00, balance C.O.D. MONEY BACK GUARANTEE. FREE CATALOG—scintillator and larger uranium and metal detectors. DEALERS WANTED.

# A NEW Exciting PROJECT BOOK

Here is one of the *newest*, most unusual project books ever written. Developed by a practical woodworking expert, each project is *exclusively created* for Duro—individually designed, beautifully illustrated with clear plan drawings and step by step instruction that anyone can follow easily. Contains many unusual, "first-time" projects never before available—each "shop-tested" to insure perfection. All understandably presented with clear photographs, no guess work, assures accuracy. Includes simple one evening plans as well as more comprehensive functional projects also helpful woodworking hints. A cleverly planned stimulus to the craftsman looking for new, modern ideas.

**A full year's pleasure in 6 issues**—Complete how-to-make instructions for furniture, household equipment, toys, novelties, home accessories, games, garden furniture and shop equipment. All new, exclusive, different. Hundreds of dollars worth of project ideas. Save 30% and order a years subscription of 6 issues for only \$1.50 or if you prefer send 35c for a single issue. Either way, if not satisfied we'll refund your money. (Canada & Foreign 50c per copy; \$2.00 per year.)

**The Duro Crafter**  
DIVISION OF  
**DURO METAL PRODUCTS CO.**  
2691 N. KILDARE AVE.  
CHICAGO 39, ILL.

MAIL COUPON TODAY

I enclose \$ \_\_\_\_\_ for one year's subscription to "THE DURO CRAFTER" (6 issues). I understand satisfaction is guaranteed or money refunded.

I enclose \_\_\_\_\_ for single copy of "THE DURO CRAFTER."

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Also Makers of Duro Chrome Hand Tools

# Congress Pulleys

Standard equipment on Bendix, Frigidaire, Hamilton, General Electric and many other appliances



## YOU PAY NO MORE for CONGRESS QUALITY

Congress quality costs no more! Insist on the drive preferred by most original equipment manufacturers. There is a difference! Congress Drives are electrolytically plated, diamond-bored and tested for trueness.

Buy Congress V-Belts and Pulleys from your local supplier.



### LOOK FOR THIS DISPLAY

You'll see it at leading suppliers throughout the United States.



Q-D Sheaves — Heavy Duty and Steel Cable V-Belts—FHP Drives

### CONGRESS DRIVES DIVISION

TANN CORPORATION  
World's Largest Manufacturer of FHP Pulleys  
DETROIT 34, MICHIGAN

Praised by Woodworkers! Endorsed by Craftsmen!



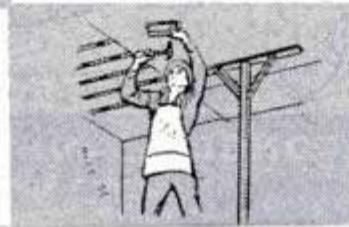
# HOW TO RECOVER CRACKED CEILINGS in 4 Easy Steps

**1. Apply furring** directly over old plaster—at right angles to joists—on 16 inch centers.



**2. Nail Upson "Floating" Fasteners** to furring on 16 inch centers. Fasteners eliminate face nailing.

**3. Clinch ceiling panel** with panel-faced block of wood. Clinch from center outward.



**4. Apply mouldings** where ceiling meets wall and wherever else they are desired.

All it takes is simple carpentry . . . and in a matter of hours, you have a lovely new ceiling that is forever crackproof! There's no messy replastering, no house-cleaning ordeal! And no visible face nailing because Upson Kuver-Krak Panels are anchored securely from the back with patented "floating fasteners!" Other Upson Panels (plus washable Upson CEILING TILE) available in a variety of lengths, widths, thicknesses. Each marked for specific uses. Send 10c for 32 page idea booklet in full color; working drawings for storage wall included free.

## UPSON PANELS

Quality you can trust



THE UPSON COMPANY

5114 Upson Point, Lockport, New York

I enclose 10c for 32 page Idea Booklet. Include working drawings of Storage Wall.

Name \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

## STOP Faucet Leaks

for years!

### SNAP in

#### SWIVEL WASHER

FEATURED IN READER'S DIGEST . . .

This amazing faucet washer lasts 10 to 20 times longer than ordinary washers. Patented swivel action allows washer to seat tightly without grinding—practically eliminates wear. Genuine Neoprene face disc. Snaps into faucet stem—no special tools needed. Ask your hardware dealer for Snap-in Swivel Washers. 3 for 69c. Accept no substitute. If dealer cannot supply, send 69c and bibb washer size to Snap Products Corp., 3615 S. Jasper Pl., Chicago 9, Ill.

## Get my FREE BOOKLETS

on home sanding and finishing! Ask your hardware dealer . . . or write:

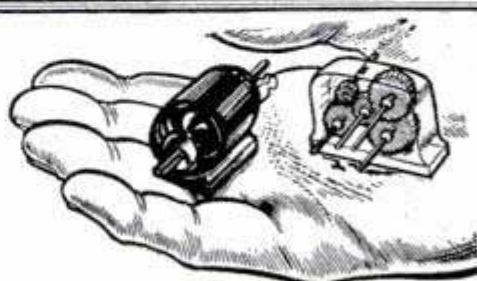
Minnesota Mining & Mfg. Co.  
Dept. PM-5, St. Paul 6, Minn.

Makers of 3M Home Workshop Products



### NEW! EXCITING! JET EXHAUST CUT-OUT

Now your car can sound off those exciting, dynamic tones—easily controlled mechanically from your dashboard. Channel your exhaust through special pipes or muffler without removing your original muffler. Easily installed. MONEY BACK GUARANTEE. Send \$4.95 check, cash, money order (postpaid) or C.O.D. plus postage to: FUR SALES, 1031 E. 63rd St., Chicago 37, Ill. Dept. PM Dealer Inquiries Invited



COMPLETE  
MOTOR &  
GEAR KIT  
HOUSING  
BATTERIES  
CLIPS

only  
**\$2.98**

#### POWERFUL MOTOR:

One of the smallest precision motors ever built yet does GIANT-SIZED JOBS. Drives Model Planes, Boats, Construction Sets, Working Models, Trains and Cars, etc., with amazing speed up to 6800 R.P.M. (or as little as 50 R.P.M. using the reduction gears that come with this exciting set). This MIGHTY MIDGET does hundreds of jobs. It's a Honey! Looks exactly like big motor yet measures 1" x 1 1/4" and weighs one ounce. For only \$2.98 YOU GET LOTS MORE with this Mighty-Midget. You get a complete set of gears and pulleys and a transparent multi-ratio gear box as well as a battery clip with two batteries and instructions. NO SHOCKS, SPARKS or SHORTS. NO TRANSFORMER NEEDED. Reverses immediately too! Endless hours of fun. Enclose check or money order for \$2.98 for this entire set and we will pay postage. C.O.D. orders plus postage.

IMPERIAL SALES CO.

Dept. M-663, 480 Lexington Ave. N. Y. 17, N. Y.

# NEW LOW PRICED *Diesel*

Puts Diesel Economy Within Reach of All

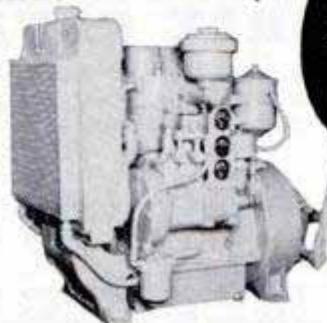
A real diesel with simplified Sheppard fuel injection. Extremely low weight-to-horsepower ratio. 100% diesel construction. Fuel consumption, 1 gallon fuel oil per hour. Write for literature and prices.

**Sheppard**  
DIESELS HANOVER, PA.

MODEL 17  
**20**  
hp

Compact

30"  
High  
33"  
Long  
21"  
Wide



Delivered complete for original equipment or replacement power.

DIESEL'S THE POWER . . . SHEPPARD'S THE DIESEL



### CAPE COD CHAIRS TRELLISES • ARBORS DUTCH WINDMILLS

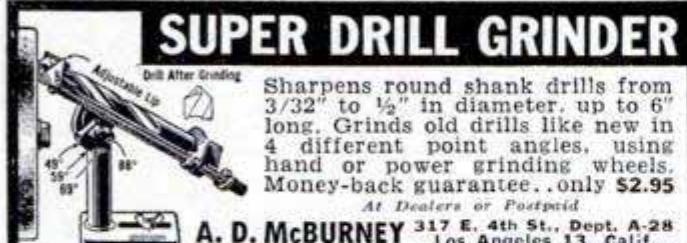
Chairs style B-C-A PLANS 50c Ea., all 3 only \$1.00. 12 different trellis designs PLAN all 12 only 50c. Unique 40" high Dutch Windmill Detailed PLAN only 75c. Unique 40" high Lighthouse having copper lantern, ideal for garden or on lake shore of summer home. Large detailed PLAN 75c.

SPECIAL all plans above \$3.00 val. Only \$2.50. Send 10c for catalog Craftsman's Model Co. Dept. P-51 DELAFIELD, WIS.

## HEADQUARTERS for CARBIDE!

Write for Free Catalogue of Tools and Conversion Kits  
TIME SAVER TOOLS, INC., Dept. 24, MUNDELEIN, ILLINOIS

### SUPER DRILL GRINDER



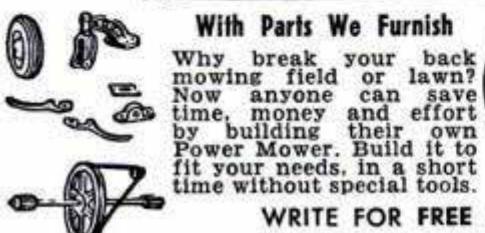
Sharpens round shank drills from 3/32" to 1/2" in diameter, up to 6" long. Grinds old drills like new in 4 different point angles, using hand or power grinding wheels. Money-back guarantee...only \$2.95

At Dealers or Postpaid  
317 E. 4th St., Dept. A-28  
Los Angeles 13, Calif.

## BUILD YOUR OWN POWER MOWER

Spindle & Blade

### With Parts We Furnish

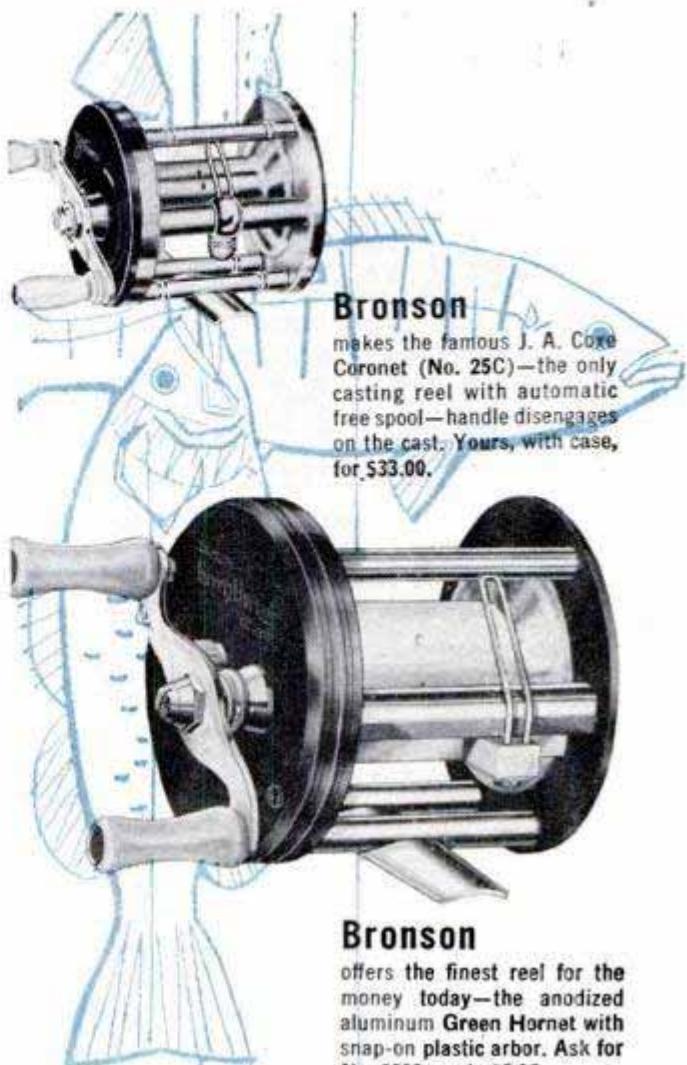


Why break your back mowing field or lawn? Now anyone can save time, money and effort by building their own Power Mower. Build it to fit your needs, in a short time without special tools.

**PULLS  
ITSELF,  
STEERS  
ITSELF**

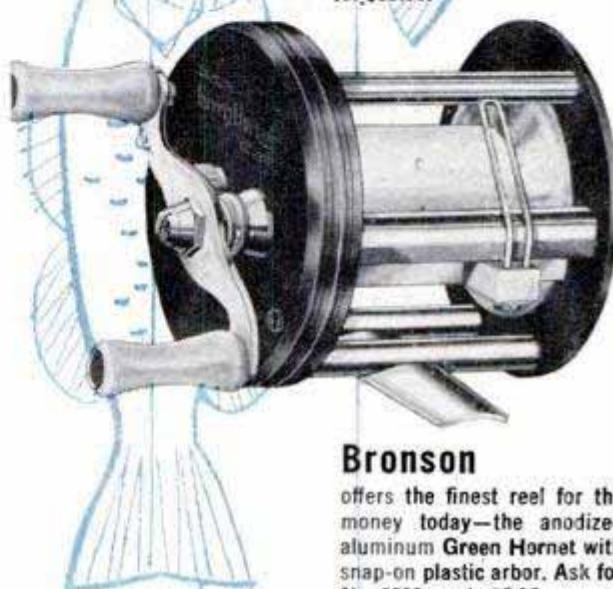
WRITE FOR FREE BUILDING  
INSTRUCTIONS—NO OBLIGATION!

T & H Mfg. Co., 811 E. 31 St., Dept. M-34, Kansas City, Mo.



### Bronson

makes the famous J. A. Cox Coronet (No. 25C)—the only casting reel with automatic free spool—handle disengages on the cast. Yours, with case, for \$33.00.



### Bronson

offers the finest reel for the money today—the anodized aluminum Green Hornet with snap-on plastic arbor. Ask for No. 2200—only \$5.95.

Wherever you fish, you'll find more fun with a Bronson-made reel. These are the casting and fly reels most famous for ease and accuracy, for speed and distance, for long and trouble-free life. Craftsmanship's the reason—from the world's largest producer of fine fishing reels.

Ask for a Bronson or a J. A. Cox reel—from \$2.95 to \$33.00.



### Bronson

presents the only multiple action fly reel—2½-to-1 gear ratio for fast retrieve. Reversible for left hand use. Adjustable drag. Multi-Royal (No. 380) \$7.95.

Free Catalog—Write Dept. PM, Bronson Reel Co., Bronson, Mich. (Division of Higbie Mfg. Co.)

# STOP BURNING OIL!

RESTORE THE POWER  
YOU BOUGHT



GET THAT "NEW CAR" PERFORMANCE WITH

## Rinq-Re-Nu<sup>TRADE-MARK</sup>

### MOTOR RECONDITIONER KIT

1-2 combination that cleans and reconditions your engine. Increases compression, eliminates piston slap, and reduces oil consumption.

#### Double Value Kit Contains

P. V. R. COMPOUND — when poured in carburetor, P. V. R. cleans your engine of gum, carbon and varnish. Freees rings, valves and pistons. Prepares your engine for...

RING-RE-NU—the amazing compound which when squeezed by tube on your pistons forms a pliable, self expanding lubricating seal on rings and pistons to compensate for wear. Good for 10,000 plus miles. Saves overhaul cost and oil bills.

#### Simple to Install —

Nothing to dismantle. Will take you only a few minutes with our easy-to-follow instructions.

Order the Genuine RING-RE-NU — not a foreign import. Made in America for American engineered engines. Guaranteed not to harm your engine. Assures you of 10,000 plus miles of "new car" performance.



1 tube kit — good for all makes of cars (except those listed below) only

**\$4.95**

POSTPAID

Copr. 1952  
R. D., Inc.

2 tube kit — for larger engines — Buick Roadmaster, Cadillac, Chrysler 8, LaSalle, Lincoln, Packard 8, Olds 88 and 98 — \$8.95 postpaid.

(\$1.00 deposit required on all C.O.D. orders)

#### 10 DAY MONEY BACK GUARANTEE

→ WRITE FOR FREE FOLDER  
**RICHIE DISTRIBUTING, INC.**  
11916 MADISON AVE., DEPT. A4, CLEVELAND 7, OHIO

#### USE EASTER SEALS



5-HP Gravely Tractor powers 21 tools—does every lawn, garden, and field job easier, better! All-gear drive, Reverse. New "Power vs Drudgery" Booklet FREE.

Write for it today!



**\*GRAVELY\***

BOX 463, DUNBAR, W. VA.

FIELD-TESTED FOR 32 YEARS

## PARTS FOR MILITARY TRUCKS

FOR JEEP, DODGE, CHEV., GMC, STUDEBAKER, 4 WHEEL DRIVE AND 6 WHEEL DRIVE. ALSO PARTS CATALOG. WRITE

### JEEP TOPS and CURTAINS

All Brand New . . . Not Surplus

Made of Heavy Canvas Duck . . . Waterproof MILITARY TYPE models. Top and Curtains, complete, less bows . . . . .

**\$59.50**

TOP and CURTAINS, HALF CAB . . . MODELS CJ2A and CJ3A, complete with hardware, less bows . . . . .

**\$65.00**

TOP and CURTAINS Complete, MODELS CJ2A and CJ3A, with hardware for entire Jeep, less bows . . . . .

**\$88.80**

When ordering please state exact model

All prices F.O.B. K.C. 25% dep. on COD's

## American AUTO PARTS CO. INC.

1830 LOCUST — DEPT. PM  
KANSAS CITY, MISSOURI



## FREE CATALOG

WAR SURPLUS

Bargains Galore. Welders, Generators, Motors, Hydraulics, Wire, Instruments, Meters, Gauges, Pumps, Drills, Winches, Books, Assembly Kits. Many other NEW and SURPLUS items. All merchandise guaranteed. Send for FREE LeJay Bargain Catalog today.

LEJAY CO., 247 LeJay Bldg., Minneapolis 8, Minnesota  
Or, LEJAY CO., 928-1st Ave., So., B47, Seattle 4, Washington.

## WORLD'S BEST SMALL TRENCHERS



Portable DITCH-WITCH digs 2" to 6" clean, even ditches to 36" depth in all types of soil. Complete unit—self propelled—outdigs 8 men. Four rugged models.

Write for illustrated literature.  
THE CHARLES MACHINE WORKS  
620 B Street Perry, Oklahoma

MORE SERVICE



Years of trouble-free protection to your fine tools. Free Catalog.

GERSTNER TOOL CHESTS  
453 Columbia St. Dayton 7, Ohio

## Find HIDDEN TREASURES



GEIGER COUNTERS (as shown) for Uranium Detection, TREASURE DETECTORS for gold, silver, etc. Lightweight, ultra sensitive. Best at any price. Also mineralights.

\* INFORMATION FREE \*

Detection Co.  
5631 Cahuenga, No. Hollywood, Calif.

PEEL 6-10 FT. OF PAINT PER MINUTE  
Down to Bare Wood...



PAINT DOZER  
**\$9.95**  
complete

You can peel paint fast and easily! With Paint Dozer you soften and peel old paint in one continuous stripping action. You get a clean, bare surface ready for repainting. And, there's no hard scraping, no messy or dangerous chemicals or flame!

In tests, Paint Dozer peeled 43 coats of paint in one stroke!

Flat, curved or grooved surfaces . . . house siding, boats, cabinets, floors, woodwork . . . you can peel them all better and easier with Paint Dozer!

Paint Dozer operates on 115-120V A.C. or D.C. household current. Its sturdy stamped-steel casing and heavy-duty ceramic element assure long life, even under daily use.

Order from your hardware or paint store, or write today for fast delivery. You must be satisfied or your money back!

LECTRO DIVISION, OTTO KONIGSLOW MFG. CO.  
Dept. 2-B, 2189 West 26th Street • Cleveland 13, Ohio

## WELD-BRAZE CUT-SOLDER



### 4 Ways to Handle 1001 Repairs Around Home-Garage-Garden

Complete welder with Twin Carbon Arc Torch and all operating accessories to do all types of metalcraft work. Easy instructions for work on iron, steel, bronze, brass and aluminum. Plugs into any properly wired AC or DC line. Low cost pays for itself in money saved and earned. A wonderful practical gift of a lifetime. Order now!

only \$14.75

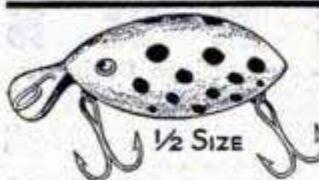
f.o.b. factory

Larger Models Available on request.

**4 way welder**

Yours on a money back  
**10 DAY TRIAL**

**FOUR WAY WELDER CO.**  
2326 S. Michigan Ave.  
Chicago 16, Ill., Dept. F2-D



\$2.50 VALUE 2 LURES \$1.00

**GUARANTEED TO CATCH MORE FISH**

All Plastic lures 2 1/4" long... 5 sure fish getting colors... Frog, Perch, Black with white, White with black or red. Choice of 1/4 oz. Spinning or 1/2 oz. Casting and Trolling Wts. No COD's.

**CATCH-EM BAIT CO.**  
Dept. 55 • Box 273 • Main P.O.  
ST. LOUIS 3, MISSOURI

**Special Offer 5 for \$2.00**

**WE HAVE MOVED!** As of April 15th to 5100 Grandriver, Detroit, Michigan. A bigger and better supply of new, used and surplus cutting tools. Write **T & T TOOL** 221 W. 2nd Tulsa, Okla.

Build Your Own Walks,  
Driveway, Outdoor  
Fireplace, Steps, Etc.

### What to Make With CONCRETE



The terrific high costs of even little concrete jobs are mostly for labor. Get Popular Mechanics **WHAT TO MAKE WITH CONCRETE** and save all the labor costs while making your home or farm shipshape. You can lay foundations, sidewalks and driveways; build steps, outdoor fireplaces, sandboxes, tennis courts, garden and swimming pools and other installations at very little cost. Book shows all — tells all — how to make the right mixture, plan, apply and gives 50 professional short cuts. Hundreds of pictures. Only \$2.00 postpaid. Order today. Money back if not pleased.

**POPULAR MECHANICS  
PRESS**  
Dept. PM17, 200 E. Ontario  
Chicago 11, Ill.



### USE EASTER SEALS

### DIRECT FROM MANUFACTURER

### 6" Carbide Tipped Saws

Available for first time for home and shop use. These 12-tooth, carbide tipped circular saws outlast steel saws 10 to 100 times. Excellent for ripping, cross cutting; for wood, plastics, masonite, asbestos, formica and non-ferrous metals. Resists abrasion of plastics and urea glues. Special analysis steel bodies, same workmanship and materials furnished industrial users for years. Choice of 1/2", 5/8", 1 1/8" round and 1/2" square and diamond arbors. Shipped anywhere in U.S. Postage paid for \$9.95. Send check or money order, satisfaction guaranteed, specify arbor hole desired. (Sharpening service \$1.50 plus postage.)

**W. F. MEYERS CO., INC., Bedford, Ind.**



# NEW 1953 BOAT KITS BY U-MAK-IT

**30 Models 8 TO 23 FEET**

### 21 FT. OUTBOARD AND INBOARD CABIN CRUISERS

Roomy cabin sleeps 2. Includes full size toilet room, galley, sink & ice chest.



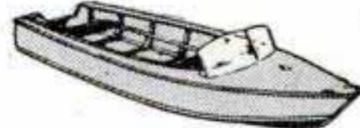
### 18 FT. OUTBOARD AND INBOARD CABIN CRUISERS

Fast Vee bottom hull, speeds up to 25 M.P.H. Accommodations for 2.



### ROWBOATS OUTBOARDS INBOARDS

8 to 14 Ft. 12 to 21 Ft. 16 to 23 Ft.



### ► NEW 1953 CATALOG

44 PAGES, shows construction details. Incl. everything to build your own—hardware, engines, conversions, paint & color chart. Also Fiberglas covering for all Kit Boats, Cabin Roofs and Decks

**SEND 35¢ COIN TODAY**

### U-MAK-IT PRODUCTS

703P - WHITTIER ST.  
Bronx 59, N. Y. City

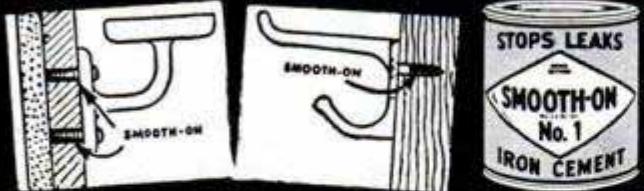
# MONEY for MEN ALL DATA FREE

THE PLASTEX Industry needs manufacturers on small scale and for big production of Lamp and Clock Stands, Art Goods and Novelties in Plastex and Marble imitation. Experience unnecessary. 1/2¢ material makes regular 10¢ store sellers. Rubber moulds furnished for speed production. Small investment brings good returns. We are now placing big Chain Store Orders with manufacturers. Ambitious men have chance for real prosperity. Our Free booklet will interest and benefit you.

**PLASTEX INDUSTRIES, Dept. A**  
3400 Third Ave. New York 56, N. Y.



# TIGHTEN LOOSE FIXTURES



Smooth-On No. 1 Iron Cement applied to your loose hinges, door handles, coat hooks, drawer pulls, knobs, casters, bathroom fixtures, tool and cutlery handles, will tighten them and keep them tight. • Get Smooth-On No. 1 in 1 1/4 oz., 7 oz., 1 lb. or larger sizes at your hardware store. If they haven't it, write us.

## FREE Repair Handbook

40 pages, 170 illustrations. Shows you how to make numerous household repairs quickly and easily. Directions are simple, brief.

SMOOTH-ON MFG. CO., Dept. 37-D  
570 Communipaw Ave., Jersey City 4, N. J.

SO-347



*Do it with*  
**SMOOTH-ON**  
THE IRON REPAIR CEMENT OF MANY USES

send for **FREE CATALOG**

America's Foremost  
money-making  
**MECHANICS'**  
**TOOLS**

It's easy to own the same "pay-off" tools used and endorsed by America's top-earning mechanics throughout the automotive, aviation and industrial fields! Snap-on tools help you handle every repair job faster, easier, better. And they LAST... pay for themselves over and over again! Start building your own tool set now with basic Snap-on units—add others any time. Genuine Snap-on tools are never sold in stores—direct to users only. Mail coupon for free catalog.

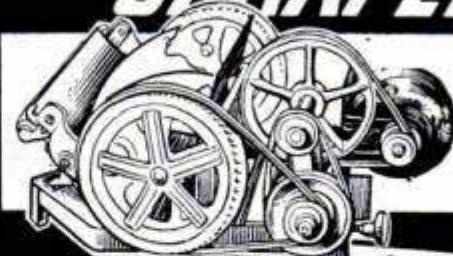
**Snap-on Tools**

THE CHOICE OF BETTER MECHANICS

**SNAP-ON TOOLS CORPORATION**  
8062-D 28th Ave., Kenosha, Wisconsin  
Send me free catalog of Snap-on tools.

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

# LAWN MOWER SHARPENER



\$47.50

F.O.B.  
ROCK ISLAND  
ILLINOIS  
Write for  
Free Literature

turn spare time into dollars  
Order direct from QUAD CITY PRODUCTS  
Company, Inc.  
Box 42, Rock Island, Ill.

## GEARS



In Stock - Immediate Delivery

Gears, speed reducers, sprockets, thrust bearings, flexible couplings, pulleys, etc. A complete line is carried in our Chicago stock. Can also quote on special gears of any kind. Send in your blueprints and inquiries.

Send for Complete Catalog No. 10  
**CHICAGO GEAR WORKS**  
440-50 N. Oakley Blvd., CHICAGO 12, ILL.



## BRONZE FOUNDRY

Schools and Home Workshops

Make your own castings of aluminum, copper, bronze, silver. Foundry sets are available in three sizes including 2400 Deg. F. blast furnaces. \$22.50; \$29.50; and \$42.00. f.o.b. Kansas City. Free Circular.

**KANSAS CITY SPECIALTIES CO.** P. O. Box 6022, Dept. P-4  
KANSAS CITY, MO.



BUILD FINE GRANDFATHER CLOCK NOW

The simple sensible Red-i-Kut way as thousands have—  
SAVE HALF. SHOP TESTED PLANS "SPIRIT OF THE CENTURY" Narrow waist 83" tall or stately straight side "SPIRIT OF AMERICA" EASY-to-FOLLOW photopack PLANS tell all—plus BROCHURE of heavy brass weight Westminster, tube chime, movements, gorgeous dials, 3/4" solid mahogany case kits. Send \$1.00 today — Both plans \$1.50 NOW.

KUEMPEL CHIME CLOCK CO., #6 Kuempel Bldg., Minneapolis 16, Minn.



## Treasure - Minerals - COINS

Easily located with new Light-weight M-Scope Detector. Superior performance, lowest price, monthly payment plan.

FREE LITERATURE  
**FISHER RESEARCH LAB., INC.**  
PALO ALTO CALIF.

SAVE GAS  
WITH A  
**MILE-O-METER**

Get the best mileage your car can deliver! Mile-O-Meter shows you how, warns when you're wasting gas. Continuously registers engine condition, indicates when adjustments are needed. A "must" if you want to make your own repairs and tune-ups. Pays for itself over and over again.

ORDER TODAY

**GALE HALL  
ENGINEERING INC.**

DEPT. 340

NORTH HAMPTON, N. H.



**\$1495      \$975**  
Deluxe 13 1/2" Standard 2 1/8"  
Illuminated dia. Model dia.

# MAN WANTED

IN EACH  
COMMUNITY

Become the "Seat Cover Man" in Your Locality with America's Greatest Line of Auto Seat Covers



COVERS FOR YOUR OWN CAR GIVEN AS BONUS!

AMAZING MONEY MAKING OPPORTUNITY WITHOUT INVESTMENT

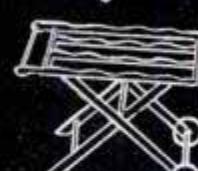
fraction of what the customer expects to pay, brother! You make money hand over fist writing up the fast orders! Line includes nationally advertised sensations like BLACK EBONY Saran, beautiful BAMBOO, brilliant FIESTA, colorful BULL FIGHTER PLAIDS, plus many other exclusive patterns to choose from, all at unbelievably low prices.

RUSH NAME FOR FREE OUTFIT

Give MAKE, YEAR and MODEL of YOUR CAR  
No experience needed. Make all the extra money you need easily just by showing! Every car owner a "hot" prospect. YEAR AROUND STEADY PROFITS. No investment to make. Actual seat covers given to producers as a bonus for OWN USE! Write for Free Selling Kit valued at \$2.00 and actual samples TODAY!

KEY PRODUCTS CORP., Dept. 4-D, 800 N. Clark St.  
Chicago 10, Ill.

## Build this Beautiful LAWN FURNITURE YOURSELF



### NO EXPERIENCE NEEDED

Smart Exclusive Styles By John Bergen . . . Four Big Plans Drawn to Scale . . . Complete Material List

Now with just a few spare time hours and some inexpensive materials you can build gay comfortable lawn furniture that will make your garden more attractive . . . more comfortable and more fun this summer.

No need to pay a small fortune for lawn furniture when you can build your own and save over 50% of what it would cost you already built!

Popular Mechanics four big drawn-to-scale plans show every step to follow. Complete material list tells you just what sizes of wood to buy so there will be no waste.

Make your lawn and garden the finest and most attractive on your block by building this smartly styled furniture. Enjoy real comfort during those hot summer months by making your garden your outdoor living room. Send today for your plans and material list. Complete set of four plans only \$2.00. Complete satisfaction guaranteed or your money refunded.

POPULAR MECHANICS PRESS  
200 E. Ontario St.  
Chicago 11

## How To Keep An Auger Bit "BITING"

Use an MT-10 INDIA® Auger Bit Stone, which is shaped to reach the edges of your smallest bits. Stone upper side of cutting edges, maintaining original bevel angle. Then stone lower side of bevel only enough to remove any burr. Finally stone spurs which score wood in advance of cutting edges. Work on inside of bit only. INDIA Auger Bit Stones are priced at \$1.00 at better hardware stores or direct.



### HAVE A "SHARP" WORKSHOP

Get more fun out of working with sharper tools. This 32-page "How to Sharpen" book, illustrated, only 10c. Send to Behr-Manning Corp., Troy, N. Y., Dept. PM-4.



**BEHR-MANNING**  
CORPORATION  
division of NORTON Company

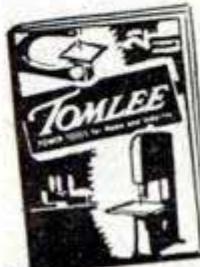
Coated Abrasives • Sharpening Stones • Masking Tapes



The Saw with

**ALL THE FEATURES!**

rips,  
cross-cuts,  
mitres,  
rabbits,  
dados



The Tomlee is a rugged cast iron precision tool with enormous capacity—made even greater by the addition of table extensions. A single hand wheel controls the depth of cut. A second knob regulates a rapid tilt mechanism and locks the sealed ball bearing arbor in any position up to 45 degrees. A large accurate tilt gauge assures perfect angle cuts. It's the most flexible, easy to operate circle saw on the market today . . . you'll be proud of the professional look obtained when you use a Tomlee. Standard equipment includes a saw guard, splitter, mitre gauge, fence, motor pulley, belt, floating motor base, blade and instructions. Feature-for-feature, you can't beat a Tomlee!

Get the 28-page Tomlee Home Workshop Book . . . shows what to make and how to make it . . . yours for 25c in stamps or coin.

**TOMLEE TOOL AND ENGINEERING CO.**  
723 North Washington • Dept. B • Minneapolis 1, Minn.

# NEW POND GARDEN TRACTOR

**\$119<sup>60</sup>**

LIMITED TIME ONLY  
FULL 2½ H.P.



ALL IMPLEMENTS  
AVAILABLE: WRITE  
TODAY FOR FREE  
12-PAGE CATALOG!

**DEALERS  
WANTED—  
MAKE EXTRA MONEY  
17" ROTARY  
POWER MOWER**  
**\$66<sup>00</sup>**  
LIMITED TIME ONLY  
MAIL THIS  
COUPON NOW

**THE POND COMPANY**  
Box 216C5, Ravenna, Ohio

Send 12-page tractor catalog.  
 Send data on power mower.

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY & STATE \_\_\_\_\_

## STOP CHANGING MOTOR OIL!

End this needless  
expense forever with

**RECLAIMO** Today's most  
advanced OIL RE-REFINING  
filter FOR CARS, TRUCKS,  
TRACTORS.

Continuously cleans and RE-  
REFINES motor oil as you  
drive by utilizing motor heat  
keeps oil in high grade  
lubricating condition at all  
times.

### "RECLAIMO"

- REMOVES SOLIDS (by filtration)
- REMOVES WATER (by distillation)
- PREVENTS Excess fuel dilution
- PREVENTS Acid and Sludge Formation
- ADDS Thousands of Miles to  
Engine Life

**MAINTAINS Stable Viscosity** **ELIMINATES All Oil Changes**  
FREE 32-page book "OIL FACTS" with  
bona fide \$1,000.00 offer on page 30. Gives  
you the complete "Reclaimo" story and  
details of our extraordinary 90-DAY NO-  
RISK TRIAL OFFER. Write for your copy  
today!

**RECLAIMO MFG. CO., INC.**  
5083 Elston Ave., Dept. M-4, Chicago 30, Ill.  
Wm. Schwalbe, U.S. Pat. 1757223, 1834654.  
2068473.

DEALERS  
WANTED

**U. S. BUREAU  
OF STAND-  
ARDS, Bul. 86  
States, "Oil  
does not wear  
out mechani-  
cally."**

# PENN YAN BOATS ...



New Stripites!

All Wood—No Soaking, No Leaking!

Outboards, inboards, Cartops®, Trail-  
boats, canoes, sailers—all beautifully fin-  
ished, masterfully built. Types for fishing,  
hunting, cruising. Choose from 100 models  
of America's Finest Small Watercraft.

**Free CATALOG:** 40 pages, 100  
models. Write TODAY! Penn Yan Boats,  
Inc., 34th St., Penn Yan, N.Y.

**NEW Stripites: All Wood  
— No Soaking — No Leaking!**

## Send FOR this Giant AUTOMOTIVE Catalog

& Save to 50% on All Parts & Accessories

### 1953 EDITION JUST OUT

World's largest Auto Accessory & Parts  
Catalog. Over 50,000 items—Hollywood  
Accessories, Hi-Speed Equipment, Rebuilt  
Engines. Everything for all cars & trucks.  
We have that Hard-To-Get part. Jam  
packed with bargains. Completely illus-  
trated (134 pages). Send 25¢ (refundable).

J. C. WHITNEY & CO. 1917 xp Archer,  
Chicago 16

## LAWN ORNAMENT-NOVELTY PATTERNS

28 Lawn Ornament Patterns, 25¢. Other Patterns; 15-20" high;  
Dutch Girl, Dutch Boy, Pirate, Bull Terrier, Mexican Girl,  
Mexican Boy, Dwarf, Penguin, Flower Girl, 15¢ each. 25 Novelty  
Patterns, 30¢. All 62 Full Size Patterns, \$1.00.  
Strother Pattern Service, Dept. DG-8, Box 128, Belington, W. Va.

CHOOSE FROM PROFESSIONAL QUALITY

# WESTCRAFT TOOLS AT WESTERN AUTO

**Print Your Own**  
Cards, Stationery, Advertising,  
labels, circulars, photo and movie  
titles, church work, tags, etc. Save  
money. Sold direct from factory  
only. Raised printing like engraving,  
too. **Print for Others, Good  
Profit.** Have a home print shop.  
Easy rules supplied. Pays for itself  
in a short time. Write for free cat-  
alog of outfit and all details.  
KELSEY PRESSES, N-37 MERIDEN, CONN.

BeMoCo Dependable

**AUTOMATIC  
SAW SET**

Sets 400 teeth per minute on hand or band  
saws 4½ to 16 point. Hammer and anvil action  
sets teeth accurately and uniformly... No tooth  
breakage. Does a perfect job. Used profitably  
by saw shops everywhere and saw manufacturers.  
Every machine guaranteed!

FAST - ACCURATE - DEPENDABLE

**BEAVER MFG. CO.**

Saw Machine Div. 3-C

800 S. ISIS AVE. • INGLEWOOD, CALIF.

212

POPULAR MECHANICS

**DRILL  
SAW**

**INTERNATIONAL REAM CUT**

**HI SPEED COPE SAW DRILL BIT**



**DRILL, SAW, REAM . . .** metal, pipe, wood, plastic, Transite, etc. Use with any electric drill, slow drill press, lathe or milling machine. Drills own starting hole—upper part of bit is used to cut, saw or ream circles, ovals, squares or scrolls. Easy to operate. Ideal for carpenters, mechanics, electricians, plumbers, hobbyists, many others. Abrasive resistant, high speed steel. Flutes ground from solid. Will withstand severe continuous use without breaking. Resharpened at no charge. Takes place of up to \$50 in tools.  $\frac{1}{4}$ " diameter, 2" cutting sections, total length 3 $\frac{1}{2}$ ". Available in three types—All Purpose, Wood, Heavy Metal. Specify type needed. Set of 3, \$11.50. Details on request. Shipped same day. Money-back guarantee. Dealer inquiries invited. ORDER NOW! SEND CASH, CHECK OR MONEY ORDER.

Manufactured and distributed by  
**INTERNATIONAL TWIST DRILL CORP.**  
618 Wyandotte, Rm. 632, Kansas City 5, Mo.

only  
**\$3.95**  
POST PAID

## HULA DANCER • GETS BIG FISH

Small but mighty, this deadly open-water hooker is heavy enough to make long casts easier. Sinks and runs medium depth. Special "lip" gives special action—fools the wise ones. 5/8 oz. At your dealer. \$1.25 ea.



FRED ARBOGAST & Co., Inc., 2274 W. North St., Akron 3, Ohio

**FREE** WRITE TODAY FOR YOUR BIG FREE ARBOGAST COLOR CATALOG—FULL OF PICTURES OF CATCHES

**MAGNETS** OF ALL TYPES — 10c UP  
AMAZINGLY POWERFUL!!  
6 ounce horseshoe magnet—\$1.50.  
Our Leader, 1 lb. magnet lifts 40 lbs. \$2.95. New alloy—will not weaken! Useful for lifting valuables from tanks, lakes, or rivers easily! 7 small magnets \$1.25 with list of many shop and home uses. Satisfaction guaranteed.

R. EYRICH, 1091 N. 48 STREET, MILWAUKEE-8, WISC.

**NEW, IMPROVED CALCULATOR FOR WOODWORKERS** only 25c  
Instantly gives information on lumber, nails, concrete mixes, painting materials, etc. Convenient, simple to read. Just set dial for nail specifications, to convert linear to board feet, find bit sizes for screws, compare characteristics of woods, 6" diameter heavily varnished cardboard. Send 25c, no stamps, please to Greenlee Tool Co., 2104 Columbia Avenue, Rockford, Illinois.

**USE EASTER SEALS**

**Ball-Bearing SPEED WHEELS**



**JUVENILE WHEELS** (No bearing, solid tires)

4"	40c	6"	65c
5"	45c	7"	75c
(Semi-pneumatic tire, ball bearing)			
8x1.25	\$1.85	10x1.25	\$2.20
8x1.75	1.95	10x1.75	2.30
8x2	2.20	10x2.00	2.65
12x1.75	3.45		

**INDUSTRIAL WHEELS**

Lug Base, Semi-Pneumatic tire	
5x1.75	\$3.65
6x2 SW	3.45
6x2.00	4.00
8x2.00	5.20
8x2.50	5.40
Smooth Base, Pneumatic tire and tube	
8x3.00	\$11.00
10x2.75	6.80
10x3.50	10.55
10x2.00	\$6.10
12x2.00	6.90
12x3.00	9.20
16x4.00	15.15
12x4.00	\$12.10
4.00x8	13.10
14x4.50	13.40

Available Now — CASTERS

Write for circulars on all wheels.

No c.o.d. orders. Prices F.O.B. our plant.  
**JIM BROWN TOY COMPANY**  
1095 HOME AVENUE AKRON 10, OHIO

ANOTHER WALTCO FIRST

Weighs less

than 4 oz.

the amazing

new

Waltco

**ny-o-lite**

**SPINNING REEL**

of DuPont Nylon **\$13.50**

with two spools

## See These Amazing Features!

- Weighs approximately 4 oz. yet this remarkable new reel is so tough it can take abuse no other reel could withstand.
- Requires no lubrication for the life of the reel.
- Nothing to rust or corrode; absolutely impervious to salt water.
- Operates as smoothly and quietly as a canoe through water.
- Equipped with bale-type positive pickup.
- Anti-Reverse lock prevents handle spin.
- Sure-grip reel foot provides self-locking positioning on rod handle.
- 2 Spools with every reel for easy changing to different weight line.
- 5 yr. service warranty covers wear or breakage.

For a perfectly MATCHED, BALANCED spinning set see a Ny-O-Lite Reel on a Spincaster rod.

Send 10c for full color catalog of complete Waltco line.

**WALTCO PRODUCTS** 2300 W. 49th St., Dept. PM-43 Chicago 9, Ill.

## BIGGEST SHAVE NEWS IN 50 YEARS!

**"CANNED-LATHER"**  
READY TO USE!  
Just Push Valve... Out Comes Lather

**AERO SHAVE**  
Only **59¢**

Richer, Creamier Lather  
No Brush Needed  
No Greasy Cream  
3 Beard Softeners  
Built-in Lano-Lotion  
Soothes, Smooths Skin

**AERO SHAVE** Lather Bomb



# WELD IT YOURSELF! IN A JIFFY!

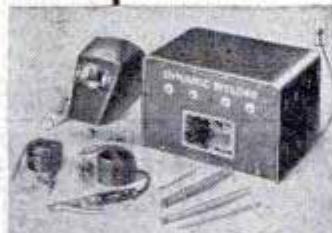
**Weld, Cut, Braze, Solder  
IRON, STEEL, BRONZE, BRASS,  
ALUMINUM & OTHER METALS**

Tool and Equipment breakdowns are always annoying and costly. Don't let them bother you. Get a Dynamic Arc Welder. You can do expert work on your very first job. Welders operate from any properly wired 110 V. AC line. The handiest "tool" in your workshop. A Dynamic Welder will save its low cost over and over again in time and money.

**DYNAMIC INDUSTRIAL** type transformer Arc Welder 75 amp. output for Industrial or Workshop use.

## DYNAMIC WELDER CO.

Dept. D2-D, 15 E. 23rd St.  
Chicago 16, Ill.



## Free Details and "How to Weld"



## AMAZING T.V. Antenna Eliminator

Small device attached to rear of set where it's out of sight. Outperforms outdoor aerials. No snow, no ghosts. No messy wires or "rabbit ears" to spoil the appearance of your set. Rush your name and address today for free details. Or send \$2.95 to

2306 S. Howell Ave.

ARROW SALES CO. Dept. 1-4M, Milwaukee 7, Wisc.



USE-

SAND-NO-MOR  
ABRASIVE BLOCK

35c ea.  
9" x 2" x 2" ea.

Removes old wood  
finishes. Smooths wood  
and plaster.

"Won't clog" — 100% usable  
EASY TO USE — VERY FAST

FINE FOR FURNITURE — BOATS — PLASTER — DRY WALLS  
If your dealer can't supply — send \$1.00 for THREE  
INTRODUCTORY SAND-NO-MOR blocks.

Address: Carter Products Co., Box 1924, Columbus 16, Ohio

**VIKING**  
**SUBURBANITE**  
Garden Tractor  
and Power Mower

## Cultivates Narrowest Rows

A practical, low priced, one wheel Tractor for Cultivating, Mowing and other jobs—Patented Engine-in-Wheel Construction. Well Balanced. Also complete line of Two Wheel Tractors.

Write Today

**AMERICAN FARM MACHINERY CO.**

1058 33rd Avenue S.E. Minneapolis, Minnesota



## ELECTRIC MOTOR BARGAINS!

### HIGH RPM — 2 SPEED

ONLY  
**\$6.95**  
Post paid

Runs low at 6,000 RPM and over 10,000 RPM at top speed (develops full  $\frac{1}{4}$  HP). Ideal for tool post grinder, pressure blowers, dust collector and hundreds of experimental uses. Series type motor, 110 volt. 60 cycle, 1 phase. Rugged cast frame, ball bearings sealed for life of motor. Has  $\frac{5}{16}$ " shaft, threaded at end for holding grinding wheels, etc. Complete with two fans for dust collecting, blowers, etc. 3-Speed as above only \$8.50 postpaid.



### POWERFUL, 1/3 HP MOTOR

Regular \$24.00 Value  
Guaranteed,  
Famous Make  
**\$12.50**  
fob

For Heavy-duty Farm, Home & Shop use

Tremendous name-brand buy!  $\frac{1}{3}$  horsepower, 1750 RPM motor makes hard starting jobs a snap. Use on Air compressors, Blowers, Farm equipment, much more! Quiet, smooth operation. Built to withstand rugged use. Dynamic Repulsion-Induction type with heavy-duty on-off switch. Totally enclosed modern design keeps out dust, dirt, grime and fumes. Dual voltage, 110-220, 60 cycle. Satisfaction COMPLETELY guaranteed or money back! Limited supply. Order NOW!

— SEND FOR FREE CATALOG —

Roberts Electric Co., 849 W. Grand, Dept. 59, Chicago 22, Ill.

APRIL 1953

## Everything YOU NEED

One low price gives you a complete welding outfit ready to use. Save Money! Buy direct! Sold on 10 day money back guarantee. Send today for FREE details.

*Holt's* DOES THE JOB  
FOR YOU!



## CAR BURN OIL?

Nothing's as good as a complete engine overhaul—but Holt's genuine Piston Seal cylinder compound does restore power and compression—does cut oil consumption—up to 10,000 miles! Only Holt's has been tested and proved throughout the world more than 15 years. Your car needs it! Only \$4.95. Canada \$5.95.



## MUFFLER TROUBLE?

No muffler is installed right, no muffler is repaired right, unless the job is done with Holt's "Gun Gum" Muffler Seal. Use straight from the can, no mixing. \$1.69 per can. Canada \$2.00.

## HOLT'S GUN GUM MUFFLER SEAL

## ONLY HOLT'S LOY Metal Mender



## IS REAL METAL IN-A-TUBE!

Holt's Loy repairs everything from auto body dents to loose tool handles! Rust-proof, flameproof, waterproof, holds 150 lbs. pressure! Handles like putty—sets harder than lead in metal, plaster, wood—even on aluminum! Loy is new—nothing else is "like" it. Only \$1.00 for large tube. Canada \$1.25.

If your dealer cannot supply Holt products, send to:

**TREGLOWN CO., INC., FANWOOD 46, N. J.**

CANADA: Treglowne, Ltd., 1366 Greene Ave., Montreal 6

## K-D TOOLS for YOU!

### Free Catalog

Over 100 tools described, illus.

Special time savers for general

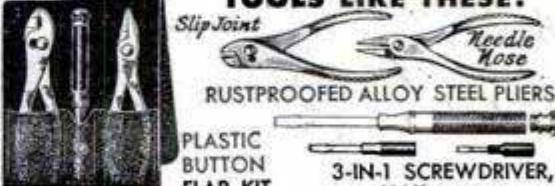
workshop; auto valve, ring, igni-

tion service. Tool chart for

servicing Ford valves. Ask any

mechanic about K-D Tools—oldest line of valve

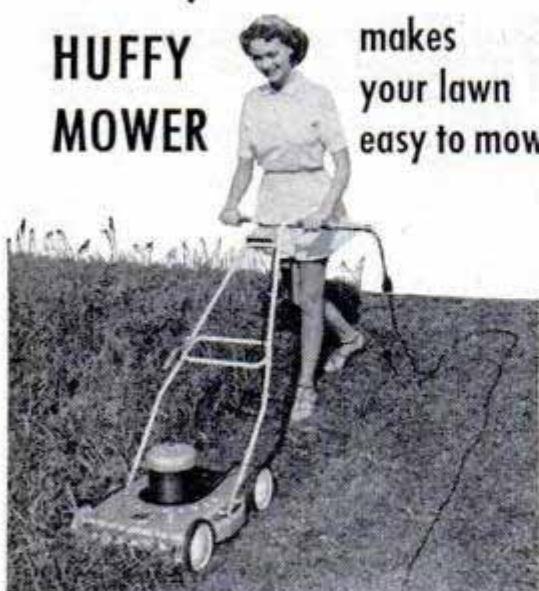
service tools in U.S. At Auto Jobbers everywhere.



**Introductory Offer**—K-D 5B Kit illus. Pocket size. For small tedious jobs in home, office, workshop, hobbies. Ideal gift. Real forged pliers correctly designed, tem-  
pered to last. Hardened and ground screwdrivers. No stamps, **\$1.62**, no C.O.D. **Order Today!** P.P.A.D. U.S.

K-D MFG. CO., DEPT. 11 LANCASTER, PA.

## QUIET, LIGHTWEIGHT HUFFY MOWER



makes  
your lawn  
easy to mow

If you haven't tried a Huffy Mower, you don't know how easy lawn mowing can be.

The lightweight Huffy uses quiet electric power. You cut grass at your own speed, relaxed, almost without effort. No wonder men and women like it.

It cuts tall lawn weeds; won't jam on twigs; trims within  $\frac{1}{2}$ " of wall or tree. Can your present mower do that?

If it can't, drop us a post card. Ask for the folder "Quiet, Lightweight Huffy Mower." We'll send it and the name of a nearby dealer who will let you try a Huffy on your own lawn. The Huffy is only \$58.25, east of Denver.

### HUFFY MOWER.

157 Gilbert Ave., Dayton 1, Ohio

## GUARANTEED BITE-PROOF! NEW NYLON BIT

TASTELESS!  
CUSHION BITE

**MEDICO**  
V. F. Q.  
FILTER PIPE

\$2

ASSORTED STYLES

Throw Away Nicotine  
TRAPPED IN MEDICO'S FILTER

## BEAT SUDDEN DEATH



### STOP TAKING CHANCES AND ORDER NOW!

Kit #2 Protects (1) car or truck, front & rear, now only. **\$1.00** ppd.  
Kit #3 This is a necessity for all bicycles! lights up front and rear fenders ..... **\$0.50** ppd.

Kit #4 Now you can make your own roadside signs, light up your mailbox, etc. Kit contains the large, die cut, letters & numbers that you ask for. Each 2 inch letter or number ..... **\$0.10** ppd;  
4 inch ..... **\$0.25** ppd; 6 inch ..... **\$0.50** ppd.

Kit #5 Obstruction Kit. Sailors ..... light up those pilings, docks, anchor can, etc. Farmers mark that barn entrance, garage door, gates, etc. This kit has a million uses.

Kit of (2) large 3"x8" pieces of reflective material ..... **\$1.00** ppd.

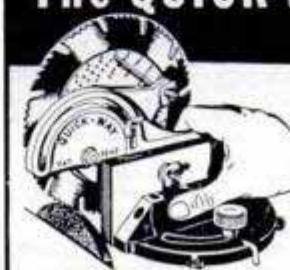
### SAFE - T - GLOW PRODUCTS

BOX 2467

DEPT. PM-3

GARY 5, IND.

## The QUICK-WAY to SHARPEN CIRCULAR SAWS



Model 6-12P  
**\$16.50** Postpaid

QUICK-WAY Saw Company

11 Riverside Corning, N.Y.

## PAINT SPRAYER



Makes Painting Easy  
Sprays glossy enamels, lacquers, insecticides, mothproofers, oils. Self contained unit requires no compressor, motor or accessories. Metal parts make this unit LIFELONG useful tool. Spray adjustable finger-tip control. AC-110 volts. Paint chairs, autos, homes, furniture. Only \$9.95 prepaid.

### IMPERIAL SALES

480 Lexington Ave., Dept. S-664, N.Y. 17, N.Y.

GIVE THE HANDICAPPED A CHANCE.  
USE EASTER SEALS.

## FIBERGLASS YOUR BOTTOM WITH A BOAT KIT

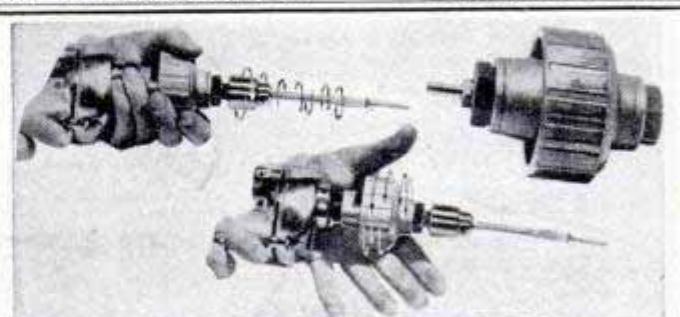
New, quick, easy, economical pre-packaged kits for covering boats up to 16'. Order by boat length. Kits complete with all necessary materials, tools and Stanford's proven instructions. Cures without sunlight. For larger or planked boats, write Stanford's . . . also for comp. instructions on building all-Fiberglass boat or car body. Dealer inquiries invited.

	Bottom, Only	Sides & Transom
8'	\$14.95	\$27.95
10'	24.95	36.50
12'	26.50	37.95
14'	34.95	46.50
16'	36.50	65.75

### PATCH KITS

Small. . . **\$3.25** Large. . . **\$4.95**  
PRICES F.O.B. BURBANK

STANFORD'S FIBERGLASS CO., Dept. PM-4  
1404 WEST BURBANK BLVD. BURBANK, CALIFORNIA



## BABCO 5-TO-1 SPEED REDUCER

FITS  $\frac{1}{4}$ " DRILLS

Convert your  $\frac{1}{4}$ " electric drill to electric screw-driver—drill holes to  $1\frac{1}{4}$ " in wood, to  $1\frac{1}{2}$ " in masonry. Planetary gear system provides tremendous torque increase. Instant starting, stopping with hand clutch control. To operate tool, simply grip reducer: **\$9.95** ppd. release to stop.....

BABCOCK MFG. CO. 6251 CLAREMONT AVE.  
OAKLAND 18, CALIF.

# MIDGET TRACTOR READY!

**CONTRACTORS:** load skip mixers, small trucks, level earth! **MUNICIPALITIES:** clear snow, back-fill park-way trenches, control weeds! **FOUNDRIES:** many uses! **FARMERS, ESTATES:** clean barn, till soil, plow snow, etc.



6 FOOT  
LIFT!

## Also A Powerful Bulldozer

Mead's "MIGHTY MOUSE" HI-LIFT Tractor-Dozer pivots within its own length. Weighs only 1300 lbs. yet dozes and hydraulically lifts a 5 cubic foot capacity bucket up to 6 feet! Machine only 40½" wide, 95" long. 2 speeds forward—1 reverse, 6 H.P. engine. M 6-HI-LIFT'S size, maneuverability make it ideal for contractors, municipalities, railroads, farmers, estate owners — where larger units cannot work. Accessories such as dozer blade, mower, etc. available. Write for FREE circular!

**MEAD**

SPECIALTIES  
COMPANY  
Dept. T-1243

4114 No. Knox Avenue,  
Chicago 41, Ill.

## CARBURETOR TOO RICH MAKES MOTORIST TOO POOR



Car owners who are wasting money, getting poor gas mileage due to over-rich mixtures, will be pleased to learn how to save gasoline by **VACU-MATING OVER-RICH MIXTURES**. Vacu-Matic fits all cars, trucks and tractors. Automatic and operates on the supercharge principle. Easily installed in a few minutes.

### SALESMEN WANTED! Big Profits

For FREE particulars, how you can install one on your own car for introducing, just send your name and address on a postcard to VACU-MATIC, 7617-2006 W. State St., WAUWATOSA, WIS.



5 pc. basic CONWAY group \$2.00  
Includes settee and adult's chair with removable backs, end table, low bench-table and child's chair. Plans 50¢ ea.  
All 5 \$2.00 with FREE decal.

**SUMMERCRAFT STUDIO**  
DEPT. D. HAMPTON, N. H.



### ELECTRIC WELDER AC or DC 110 Volts

The "Little Marvel" all-metal welder, 5-year written guarantee, and flame torch welds  $\frac{1}{8}$ " metal — brazes up to  $\frac{1}{2}$ " or money back. Also solders and cuts, \$10.40 plus 50¢ postage. "Little Marvel" without flame torch \$6.45. On C.O.D. postage extra.  $\frac{3}{4}$ " Heavy Duty transformer welder \$18.95 F.O.B. All welders complete with everything — ready to plug in.  
**ESSAY MFG. CO.**, Dept. 51, Quincy 69, Mass.

\$645  
Complete

TURN THIS

INTO THIS



### AT LAST! A CHROME RESTORER THAT WORKS!

Stops rust from forming! Keeps chrome mirror-bright!

Now keep your bumpers, grillwork, window frames, all chrome on your car sparkling bright as the day you bought it! Keep it rust-free for life! No matter how badly pitted or scarred, this sensational new 2-Way Chrome Protector wipes it Mirror-Bright, prevents rust and corrosion **only \$2**

**ONE APPLICATION LASTS ENTIRE SEASON**—gives you safe, foolproof protection against vicious biting erosions of SALT AIR-SUN-RAIN-SLEET—etc. 101 USES—for fishing reels, boat trim, bicycles, sporting equipment, etc.

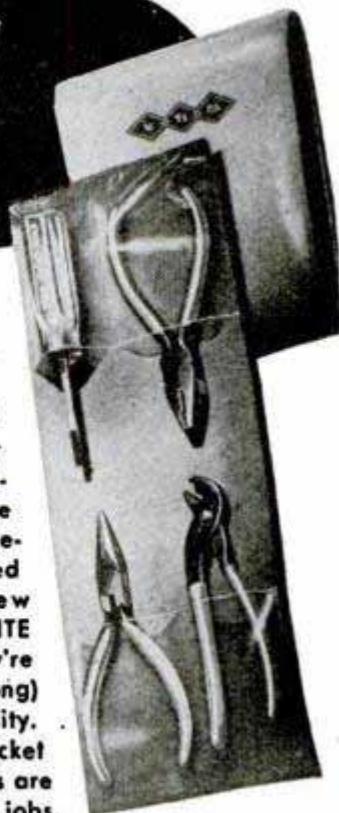
**RESULTS ABSOLUTELY GUARANTEED OR MONEY BACK!** Enclose \$2, check or money order with your name and address.

**H. SEARS INDUSTRIES, INC., Dept. C-705, 799 Broadway, New York 3, N. Y.**

NEW!

### A UTICA® TOOL KIT THAT FITS YOUR POCKET

If you like tools you'll go for this one! Four midget tools in a folding plastic wallet. Three types of pliers with special red plastic covered handles and a screw driver with red TENITE handle. Though they're "midgets" (4" to 5" long) they're of finest quality. The wallet fits your pocket perfectly and the tools are exactly right for 1001 jobs.



### NATIONAL HARDWARE WEEK — April 17 to 25

During National Hardware Week your local dealer has some good news for you about a special price on this wonderful UTICA midget tool kit. Ask him about it — and other tools by UTICA



IT PAYS TO BUY QUALITY TOOLS  
and the world's best tools are made in U.S.A.



### How About Your Door!

Rubber weatherstrip designed for all overhead doors. Protects against rotting-freezing — splintering — glass breakage.

60c PER LINEAL FOOT STATE LENGTH.  
ORDER DIRECT.  
CHECK OR MONEY ORDER.  
NORTH RUBBER CO. 12221 Phillips Ave.  
Cleveland 12, Ohio

### WITH 2-WAY CHROME PROTECTION

Complete Chrome Protector Kit containing:

1—Bottle of **RUST REMOVER** chemical with special applicator. Enough to remove all rust from car.

2—Can of **PROTECTOR** chrome rust preventer and applicator. Enough for years of safe protection.

1903—GOLDEN ANNIVERSARY—1953

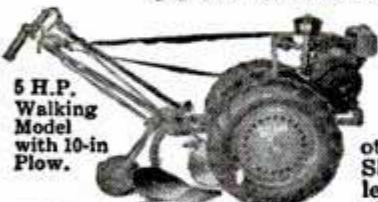
# SHAW

"DU-ALL"

## Garden and Small Farm Tractors

STANDARD OF QUALITY FOR MANY YEARS

### Low Cost 1½ to 5 H.P. Walking Models Do All Garden and Yard Work ...Fast, Easy



5 H.P.  
Walking  
Model  
with 10-in  
Plow.



### Powerful 5-8-12 H.P. Riding Tractors Ideal for Larger Acreage



12 H.P.  
Shaw Du-All



Famous Shaw design provides lowest cost power for small farms. Handle 10, 12, 14-inch plows. Ride between or astride 42-inch rows. Handle all ground preparation and cultivation with Shaw quick-mount tools. Mow, rake, cut wood, spray trees, other jobs with power take-off attachments.

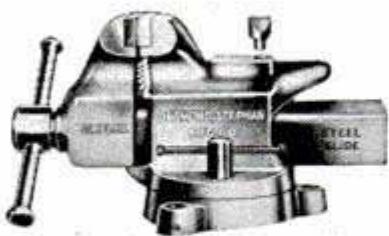
WRITE TODAY... GET FREE LITERATURE on complete Shaw line, thrifty-low prices, exclusive features. Ask dealer to demonstrate.

**SHAW MANUFACTURING CO.**  
4504 Front St., Galesburg, Kansas  
668-C N. 4th St., Columbus, Ohio

## HEART OF THE WORKSHOP

Good tools pay for themselves in durability and usefulness . . . Let a DESMOND-SIMPLEX Utility Vise help you with Spring household repair and workshop jobs.

get  
extra  
value!



Greater jaw capacity  
360° swivel base  
Replaceable jaw inserts  
Non-pinch handle  
Pounding anvil

Cut-off tool  
Built-in pipe jaws  
Enclosed steel screw  
STEEL CHANNEL  
SLIDE

it  
costs  
no  
more

Write for "Vise Application" folder to DESMOND STEPHAN MFG. CO., Urbana, Ohio, or ask your local Hardware Dealer for one.

## DESMOND-SIMPLEX VISSES

What?  
POWER  
TOOLS  
only \$16  
EACH!



### 5 POWER TOOLS IN ONE

### FACTORY TO YOU \$79.95

SUPERSHOP offers you a precision-built complete power tool workshop. 100% ball bearing. RUGGED. Accurate. Big capacity. 15 day FREE trial. Money back guarantee. Mail postcard for FREE catalog. Buy on easy pay plan.

POWER TOOLS, INC. 146 YATES AVENUE  
BELOIT, WISCONSIN

VERTICAL  
DRILL PRESS

## build the SS UNITED STATES

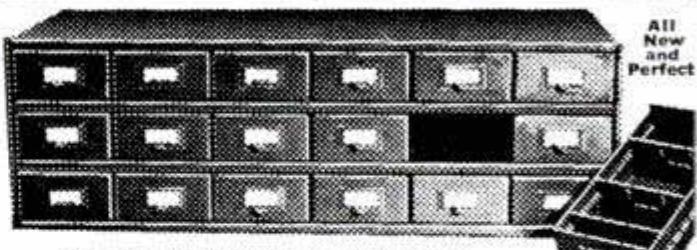


HULL \$6.25  
Completely  
machine carved

Having trouble building hull of 36" model S.S. United States featured in Pop. Mech. articles? Save hours of tedious carving with this machine-carved, kiln-dried basswood hull, requiring only few minutes' sanding. Build your superstructure from P.M. articles. Send check or money order for \$6.25 ppd. saves 25c C.O.D. handling-charge. Dealer inquiries invited.

**NEPLACO WOOD PRODUCTS**  
GLENWOOD RD. • CLINTON, CONN.

All  
New  
and  
Perfect



### 18 DRAWER STEEL PARTS BIN

Green baked enamel finish, all in one unit. Overall size 11" high, 33 3/4" wide, and 11 1/4" deep, 18 drawers, drawer size 2 1/2" high, 5 1/4" wide, and 11 1/2" deep. Each drawer has 3 adjustable separators, 72 compartments, label holder and drawer pull. Drawers cannot fall out but can be removed. Extra heavy industrial construction. Shipping weight 63 lbs. Regularly \$39.50.....

\$19.75

### ALL PURPOSE STEEL SHELVING

Industrial quality, 5 shelves, adjustable every inch, 48" high, 30" wide, 12" deep, 1 pair of sway back braces. Finished in office green baked enamel. Shipping weight 45 lbs. \$14.75 value.....

\$9.75

Guaranteed to be the finest quality material. Packaged to arrive in perfect condition. Money back guarantee if not completely satisfied. Send check or money order. Sorry, No C.O.D.'s. F.O.B. Buffalo.

**REPUBLIC HARDWARE AND SUPPLY CORP.**  
STEEL EQUIPMENT DIVISION  
22 E. North Street, Buffalo 3, N.Y.

# GIGANTIC SAVE-TO-70% MAIL SALE

WAR SURPLUS  
EXCESS INVENTORY  
BANKRUPT STOCK

## POWER PLANTS & GENERATORS



Save to 70% on 115-volt, 60-cycle guaranteed units. Plants  
 • 5KW, \$531.70 • 3KW,  
 \$299.50 • 2KW, \$279.50  
 • 1KW, \$179.50.  
 Generators • 5KW, \$259.50  
 • 3KW, \$189.50 • 2KW,  
 \$139.50 • 1KW, \$99.50.

Write for Power Plant Catalog

## Winches - Hoists - Blocks

- Dock Winch, 1000 lb. \$19.95
- Farm-Contractor dual ratio 2000 lb. winch, excellent design ..... \$29.95
- Chain Hoist (lever type) 3000 lb. ..... \$19.48
- Army Snatch Block, 13,000 lb. .... \$12.95
- Winch Cable, 50' with load hook.... \$9.90

## HYDRAULIC BARGAINS

Build your own loaders, diggers, presses, plow lifts, etc. Lowest prices. Savings to 50%. All prepaid to you. Brand new. See our "How To Build" catalog.  
 • Tractor Pump ..... \$45.50  
 • Hand Pump ..... \$10.50  
 • Cylinders, 3"x24" stroke, 7000 lb. lift. \$39.90 • 2"x10", 3100 lbs. .... \$16.50  
 • Control Valve. For single or double acting cylinders, Sale..... \$17.98

Write for hydraulic Data-Catalog

**ORDER FROM AD, or Write for BIG FREE CATALOG!**  
**OUR 30-YEAR POLICY:** • Everything Guaranteed Satisfactory  
 • We Pay Shipping Charges in U. S.

## BURDEN PAYS ALL SHIPPING CHARGES



## Correspondence School Bargain

Engineering school closes due to high costs. Limited quantity their fine courses. Radio, \$5.95. Electrical \$5.95. Combined, \$9.95.

## AIR COMPRESSOR UNITS



Paint, clean, etc. Build your own or factory units.

- DeLuxe Air Kit. Tank, compressor, valves, gauges, fittings, regulator, paint gun and "How To Build". Special ..... \$45.49
- Economy Kit ..... \$31.90
- Factory Unit on wheels ..... \$88.75
- Air Items. Piston Comp. \$20.50. Motor pressure switch, Regulator, \$2.65. Pop-Off, 160 lb. gauge, \$1.89. Air Power Auto Grease Gun, list \$60.80, Special ..... \$23.85

Write for Air-Data Catalog

## SPECIAL for the month



20 1/2"

### HYDRAULIC FARM CYLINDER

Total quantity 3021.  
 • Leading make. Brand new. Standard unit, 3" bore, 8" stroke, one way, 1" rod, 3/4" inlet. Made for plow Co. that changed to different stroke. Will lift 7000 lbs. Guaranteed. Hundreds of uses on farm, industry. Lift plows, arbor press, wagon dumpers, dozer, etc. Natl. Advt. \$24.50. SPECIAL, PPD. .... \$11.95

## WATER PUMPS and SYSTEMS

Free advice on your pump problem.

- Centrifugals. Ball bearing DeLuxe ..... \$18.90 • 50 g.p.m. \$28.90
- 100 g.p.m. ..... \$35.60
- Bronze Rotary. Finest self priming. • 6 g.p.m. \$12.75 • 10 g.p.m. \$16.95
- 20 g.p.m. ..... \$22.95
- Contractor-Farmer. Hi-Capacity. Self priming Centrifugal, 6000 g.p.h. Special, \$59.50 Shallow well water system, 110-v. .... \$69.50

## SUPER CLOSEOUT BARGAINS

- City Phones. Desk or wall. .... \$4.99
- Rural Magneto Phones, 5-bats. .... \$13.90
- Contractor's on-the-job Phones. 9.95
- \$60 Finest Air Power Grease Guns. 23.85
- Plane Propellers. New (\$15). .... \$12.95
- Surveyor's-Contractor's Tripod and Level. .... 37.95
- Engineers' Precision Hand Level. 5.95
- Precision Imported Stop Watch. 12.95
- Gas and Electric Chain Saw. 74.50
- Electric Drills 1/2" Jacobs chuck. 29.95
- Garden Tractor (2 hp). .... 119.50

## BURDEN SALES COMPANY

806 "O" ST.

LINCOLN, NEBRASKA

## Need a Chimney?



### INSTALL IT YOURSELF

Light weight, no foundation required. Shipped complete, all parts furnished.

**SAFE.** Underwriter listed —F. H. A. accepted—Bldg. Code approved. For gas, oil or coal in any type home. Costs third to half less than brick. Immediate delivery.

**WRITE FOR FREE BOOKLET** describing fully The Van-Packer Packaged Chimney.

## VAN-PACKER CORPORATION

Dept. 15 • 209 S. LaSalle St. • Chicago 4, Illinois

## 100 BEST Woodworking Projects



### SELECTED FOR YOU BY POPULAR MECHANICS EDITORS

Enjoy the fun — the pride — of making things. Get 100 BEST WOODWORKING PROJECTS, complete with simplified instruction, plans, diagrams and more than 400 how-to-do-it pictures. Make all kinds of furniture, baby carriages, clocks, lamps, book shelves, fireplaces and other useful articles at little or no cost. Send only \$2.00 with name and address. Money back if not pleased.

POPULAR MECHANICS PRESS, Dept. PM6, 200 E. Ontario St., Chicago 11

## BUY THE LATEST Automotive Accessories DIRECT FROM JOBBER!

Big cash savings on famous items by Mail Order

Big new Catalog features every smart new accessory and many parts. Beautify your car — increase its power and safety. Everything is marked down from usual retail . . . because we buy at Jobber prices!

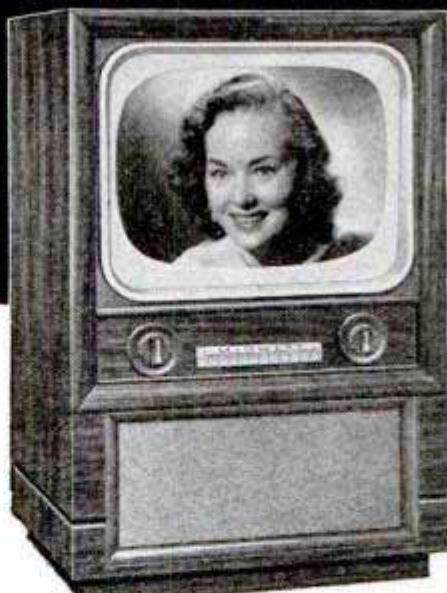
Send 25c coin or stamps for our complete 100 page catalog plus Voucher worth \$1 on your first order for \$10 or more. YOU CAN'T LOSE . . . Act Today!

## CUSTOM AUTOMOTIVE

Products Company DEPT. P APCO  
POST OFFICE BOX NUMBER 7724 • LOS ANGELES 15, CALIF.

## FACTORY-TO-YOU New Improved 1953

## MIDWEST 21" and 27" TELEVISION



30 DAYS  
TRIAL  
EASY  
TERMS

Adaptable  
for UHF  
Reception

A brand new and improved 1953 line of beautiful new consoles and table models. Giant 21" and Mammoth 27" Pictures. The finest Midwest line in 33 years.

SEND THIS  
COUPON  
For FREE  
MIDWEST  
1953 Literature

MIDWEST RADIO & TELEVISION CORP.

Dept. 25E, 909 Broadway, Cincinnati 2, Ohio

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

**Swedish Steel**

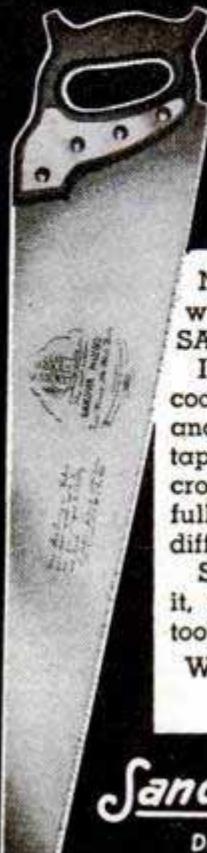
*Handsaws*

SANDVIK

FISH & HOOK

TRADE MARK

Brand of Quality



Next time you're in a hardware store, ask to try a SANDVIK Handsaw.

Its genuine Swedish Charcoal Steel cuts faster, smoother, and stays sharp longer. Fully taper ground . . . extra high crown . . . perfect balance and full size easy grip make a big difference over ordinary saws!

So try it! And when you buy it, you've got yourself a fine tool . . . for a lifetime!

Write for SANDVIK Folder  
Dept. P-I

*Sandvik Saw & Tool*

Division of Sandvik Steel, Inc.

47 WARREN ST., NEW YORK 7, N. Y.

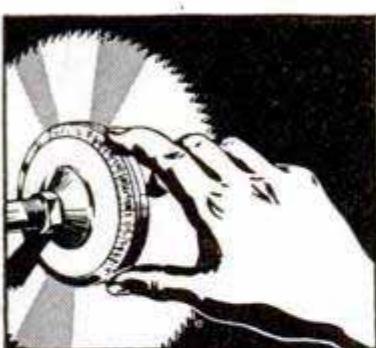
**NOW—40 different cuts with AMAZING, NEW**

*Warren*

DADO SAWING  
WASHERS

ON YOUR  
SAW BLADE!  
NO Warp . . .  
NO Wobble . . .  
NO Burning!

ONLY \$4.95 PER SET



**4 Washers Mean Perfect Balance**

Make clean, smooth parallel grooves at any angle—no chewing, no sanding. Just dial your cut—no trick screws, no vibration, strengthens blade for straight cuts. Warren Washers greatest improvement in 30 years—and most copied—look for the name on the box and washers. It costs no more to get the best—WARREN, IT'S GUARANTEED! At your dealer or order direct. Give arbor size— $\frac{1}{2}$ ",  $\frac{3}{4}$ ",  $\frac{5}{8}$ ", 1"—sent postpaid.

Send for Free Booklet

**WARREN DADO SAWING WASHERS CO.**

Dept. 24

\* Box 98 North End Station  
Detroit, Michigan

# TV HIGH VOLTAGE DETECTO PROBE

**SAFE!! QUICK!!**

TO INDICATE PRESENCE OR ABSENCE OF HIGH VOLTAGE: Place Lamp end of DETECTO PROBE near the plate lead (top-cap) of rectifier tube. Failure of Lamp to light indicates lack of High Voltage. TO CHECK IF HIGH VOLTAGE SUPPLY IS OPERATING PROPERLY:

Touch tip end of DETECTO PROBE to plate connection (top-cap) of rectifier tube. If the High Voltage supply is operating properly, a hot spark at least  $\frac{1}{8}$ " long will be re-

ONLY  
**49c**

TO CHECK OPERATION OF HORIZONTAL AMPLIFIER: Place Lamp end of DETECTO PROBE near plate end of horizontal output tube. If Lamp lights, the horizontal amplifier is operating properly. TO CHECK OPERATION OF HIGH VOLTAGE TRANSFORMER: Place Lamp end of DETECTO PROBE near plate of the horizontal output tube. Lamp should glow. Now place Lamp end of PROBE near the plate of rectifier tube. If High Voltage Transformer is operating correctly, the Lamp will now glow more brightly.

Also:

Model 170 **TV TUBE TESTER**  
Tests all tubes for shorts, opens, burned out tubes, etc. Tests every type of tube used in any and all TV sets. Sold on money-back basis. Price: **\$3.95**

KAPNER HARDWARE, INC.  
Dept. PM-4, 2248 Second Ave., New York 29, N. Y.

OBEY THAT IMPULSE — KICK 'EM OUT!  
newest Garden Tool \$1.95  
NICKEL-PLATED FOR LONG-LIFE  
POST PAID  
NO BLISTER—  
NO BACK-ACHE!!  
HAVE FUN—GET THOSE WEEDS with a  
**TEXAS TOE HOE** BOX #276A LEWISVILLE, TEXAS

ARE YOU DOING YOUR SHARE?  
USE EASTER SEALS.

**NOW . . . Get That EXTRA Mileage . . . With Plain TAP WATER!**

A sensation for years . . . now the NEW Hydro Power Injector gives you MORE power . . . saves you more on gas than ever before! NEW AND IMPROVED Yes, up to 25% more power . . . 15% less gas! That's the report on this improved wonder that lets your car burn water! Get greater efficiency . . . faster acceleration . . . and save dollars every time you drive!

ORDER TODAY

If you drive for business or pleasure . . . Model T or trailer truck . . . the Hydro Power Injector is going to give you an entirely new driving thrill . . . and cut your operating costs! Get all the details NOW! \$15.00 ppd. Truck or large car model \$17.50 ppd. Specify whether single or double throat carburetor. RUSH YOUR ORDER!

**ZUMBACH MOTOR COMPANY**

Dept. PM-1 — 127 W. 53rd Street, New York City

# Save Your Car... STOP DESTRUCTIVE "RADIATOR RUST"

RUST (which is oxidation of the metal) attacks cast iron and steel. In your automobile engine the water ports around the pistons and valve seats become laden with rust and scale causing them to overheat, resulting in excess wear and warping of valves.

However, RUSTBAR, a magic metal bar, 3" long, is simply placed in your radiator. Stops rust and corrosion—protects your engine against excessive wear! You can't afford to be without the miracle discovery of the automobile age. Also recommended for new cars. Send for a RUSTBAR today!



GENERAL ENGINEERING CO.  
P.O. Box 205, Cinti., (24) Ohio, Dept. 15

## POWER MOWERS & KITS

FREE PLANS

LOW FACTORY PRICES DIRECT TO YOU



Build your own quality mower with our LOW COST KITS. Parts, Engines, Free Plans guide you. 3 and 4 Wheel Kits, complete. Parts precision finished, ready to use. Write TODAY for Free Plans, Low Prices, Parts List and Guarantee.



3-WHEEL KIT NO. T-800



America's Finest Power Mowers completely assembled in 3 and 4 wheel models. Belt or direct drive. 18" and 20" sizes. Nationally known make engine. Latest improved features, sturdy construction and money back guarantee fully described in color folder. Write today.

▼ TRIANGLE MANUFACTURING CO., Box M-21, Fort Scott, Kansas

## AIRPLANE WHEEL ASSEMBLIES



These wheel assemblies are all new, and of heavy duty construction. Depending on load desired to carry, they are ideal for House Movers, Farms, Trailers, Carts, Wheelbarrows, etc.

26:00 23:00 17:00 8:00x4 10½x4

Size 26:00, 10 ply tire, smooth tread, uses tapered axle size 3 in. x 2½ in. 10½ in. wide. Overall height 26 in. Static Load 6,300 lbs. Weight 54 lbs., Price \$47.50 ea.

Size 23:00, 8 ply, smooth tread. This size complete with axle. Overall height 22 in., axle width 10 in. Static Load 4,700 lbs. Weight 70 lbs., Price \$37.50 ea.

Size 17:00, 6 ply, smooth tread. Uses tapered axle, size 2 in. x 1¾ in. 8 in. wide. Overall height 17 in. Static Load 2,000 lbs. Weight 18 lbs., Price \$17.50 ea.

Size 8:00x4, 4 ply, smooth tread—uses straight 1½ in. axle, 6 in. wide. Overall height 17 in. Static Load 900 lbs. Weight 13 lbs., Price \$27.50 ea.

Size 10½ x 4, 6 ply ribbed tire. Uses straight 1½ in. axle, 3½ in. wide. Overall height 10½ in. Static Load 1,200 lbs. Weight 8 lbs., Price \$9.95 ea.

Prices F.O.B. Chicago. Include approx. postage on orders paid for in advance. C.O.D. orders enclose 25%, balance sent C.O.D.

U. A. S. Corp. Dept. PM4 5637 W. 63rd Pl.  
Chicago 38, Illinois



STORM DOOR IN  
WINTER

Beauty and  
**PROTECTION**  
all year 'round

SCREEN DOOR IN  
SUMMER

**Alumatic**  
ALUMINUM  
ROYAL  
COMBINATION  
DOOR

Everlasting charm and economy for old and new homes — now at surprisingly LOW cost! See the exciting new ROYAL at your dealer's now — he'll make it easy for you to own the door you've always wanted!

Ask to see ALUMATIC or  
ARALUM aluminum combination windows, too.

Guaranteed by  
Good Housekeeping  
REPLACEMENT OR REFUND OF MONEY  
IF NOT AS ADVERTISED THEREIN

Products of

**Alumatic** CORPORATION OF AMERICA  
Dept. C94C, 2081 S. 56th St., Milwaukee 14, Wis.  
In Canada: ALUMINUM BLDG. PRODUCTS CO., LTD.  
362 Chilver Road Windsor, Ontario

# LEVELALL

FASTER THAN \$100 ENGINEER INSTRUMENTS

Up to 50 Feet or more

**Regular**  
**8.95**

The New Improved Water Level For Simplest One Man Operation Anything you need level Levelall does it. Dealer inquiries invited

**DeLuxe**  
**12.95**

tubing, mounting brackets, Level-Flo liquid and metal case.

A sturdy instrument that can be left on the job for any workman to use. Cannot be put out of adjustment and even with the most casual handling its principle is so simple anyone can level points quickly and accurately.

For footings, forms, batter boards, sills, lintels, floors, ceilings, roads, driveways, lawns, piping, farm contouring and all gravel construction work normally needing an expensive instrument.

Complete with instructions, high quality vinyl polechloride

LEVELALL: Webster St., Rockland, Mass.

Mail me \_\_\_\_\_ Levellall Instruments @ \$8.95

Mail me \_\_\_\_\_ DeLuxe Levellall @ \$12.95  
you guarantee satisfaction or money back upon return of Levellall within ten days.

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ Zone ... State \_\_\_\_\_

Send C.O.D. I will pay postman full purchase price plus delivery charge on arrival.

Full purchase price is enclosed. Send postage prepaid on orders in U.S.A. only.

# Eliminate Plumbing Expense DO IT YOURSELF



## With Complete Toilet Water Tank Repair Kit



**COMPLETE KIT—ONLY \$5.95**

Easy to be your own plumber with this Repair Kit. No special tools or plumbing experience necessary. Do perfect job the first time.

**KIT INCLUDES:**  
Porcelain Seat Lifetime Ballcock  
Leakproof Copper Float Ball  
Genuine Rubber Noiseless Tank  
Ball  
Brass Ballcock Rod  
Upper Lifting Rod  
Lower Lifting Rod  
All Necessary Washers and  
Gaskets

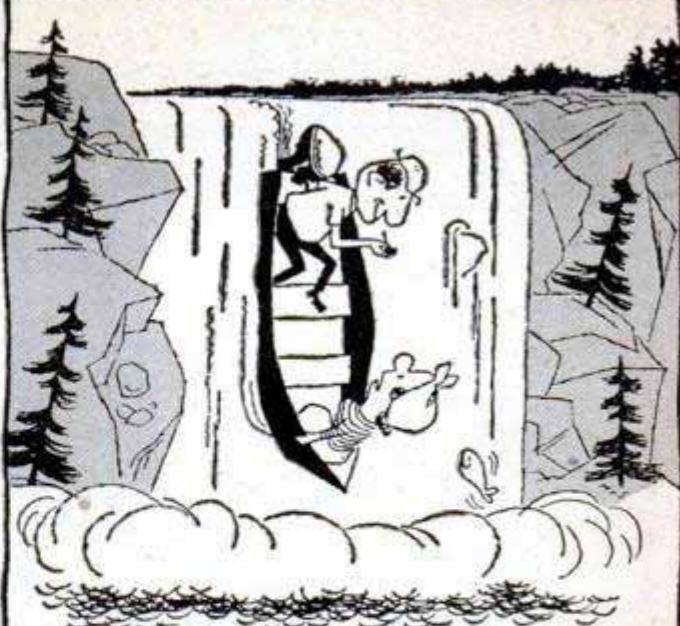
All complete in one low priced kit including detailed, easy to follow, foolproof instructions. ALL PARTS BRAND NEW AND UNCONDITIONALLY GUARANTEED. Complete Kit only \$5.95. Write for Free Catalog—complete

Bathroom Fixtures, Home Heating Systems, Pipe, Valves, Nipples, Fittings pre-

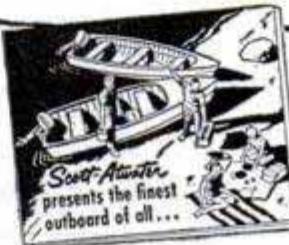
stock—Kitchen and Hot Water Heating prepared for simple, easy home installation. Big money saving prices. Buy direct from Factory Distributor to you!

**FREE** of extra cost if you order now—chrome plated brass flushing fixture.

J. KLEIN & SON, Est. 1901 HOME PLUMBING DIVISION  
4548 Cottage Grove Avenue, Dept. PM-4, Chicago 15, Ill.



"Henry, hadn't you better shift your Scott-Atwater Gold Pennant\* to reverse now?"



### WRITE FOR FREE FOLDER!

Read all about the sensational new Gold Pennant outboards. New in styling! New in features! New in performance! Write to: Dept. PM-43, Scott-Atwater Mfg. Co., Inc., Minneapolis 13, Minn.

\*7½ and 10 HP with Shift, "Stowaway" Tank, Twist Grip Speed Control

## MAKE YOUR OWN POWER LAWN MOWER \$13.95

### with this DRIVE CUTTER ASSEMBLY

Constructed for those who desire to build their own mower or to replace your old cutter assembly. Complete with 18" blade and double ball bearing drive... Add 50c to cover handling & shipping anywhere in U.S.A.

Send Check or M.O.

**ATLAS KEEN MOWER**  
229 S.W. BLVD. Dept. PM-4 KANSAS CITY, MO.

## DO MORE PLANING JOBS WITH LOW COST BELSAW

### Exclusive MONEY-MAKING features:



Belsaw Multi-Duty Planer for cabinet shops, builders, lumber yards, woodworking plants and spare time work shops... Now you can convert low cost rough and random size lumber into high priced cabinet finished stock... Easy to make flooring and popular patterns. Belsaw quickly returns cost with savings on raw material... profits on finished stock.

**Send Today for FREE literature on Belsaw, the LOW COST, high speed production planer.**

**BELSAW MACHINERY CO**

1010 Field Bldg.

Kansas City 11, Missouri

**LOW DOWN PAYMENT  
EASY TERMS**



## MORE POWER TO YOU WITH HEAVY-DUTY POWER TOOL EXTENSION CORD



**At Bargain Prices!**

AVOID VOLTAGE DROP from undersized cord which robs electric tools of full power, causes damage to motor, and danger to operator.

GET PROPER PERFORMANCE with this heavy-duty rubber ½" O.D. power tool extension cord. Has two flexible #14 conductors. Complete with armored-grip, spring-action, heavy-duty plug and female connector, both U.L. approved.

50-ft. set, postpaid—\$5.95. 100-ft. set, postpaid—\$9.95. Prompt delivery. Satisfaction or money refunded.

Clip and mail today—

**KINGSDOWN CABLE & WIRE CO. DEPT. PM4  
4540 W. Addison St. Chicago 41, Illinois**

Enclosed is check or money order for \$ \_\_\_\_\_  
Send \_\_\_\_\_ ft. cord set postpaid (U.S.A.)  
Name.....  
Address.....  
City..... Zone..... State.....

# Cushman EAGLE

gives you  
Economy, Power  
and  
Riding  
Comfort!

75 miles  
per gallon

50 miles  
per hour

**3/4c per mile—Total Operating Cost!**

The new, improved Cushman EAGLE gives you real riding comfort, outstanding performance and unusual power at minimum cost. Penny-stretching operation (less than 1c per mile!) makes the EAGLE a national favorite. Easy to buy—easy to handle—ride it everywhere. Go Cushman in '53!

Write today for free illustrated literature. See your nearest Cushman dealer for a FREE demonstration.

**CUSHMAN MOTOR WORKS, INC.**  
Dept. PM-4, 900 No. 21st St., Lincoln, Nebraska

**GIVE THE HANDICAPPED A CHANCE.  
USE EASTER SEALS.**

## BUILD YOUR OWN POWER TOOLS—TILT/ARBOR SAW

### Exclusive GIL-BILT Build-It-Yourself Features

- No machining—build easily with hand tools only
- No blueprint reading—step-by-step pictorial plans, full scale patterns, actual photographs
- Sturdy wood, aluminum and steel construction
- Capacity and performance of commercial saws selling for \$60 and up

### BANDSAW

### BELT SANDER

SAVE \$50.  
OR MORE

## GIL-BILT 10-INCH TILTING ARBOR SAW

- 27x28 in. table, 13½ in. capacity in front of blade
- 10 in. blade cuts 3¼ in. deep, tilts full 45 degrees
- Floor model 34" high, table always stays level

- New Departure ball bearing arbor, ¾" precision shaft turned down for 5/8" bore blades, alum. housing, shipped ready to run
- Jackscrew and 4½ in. dia. handwheel lowers and raises blade
- Cast aluminum miter gauge and self-aligning rip fence guide

GIL-BILT Metal Parts Kit includes Plans, ball bearing arbor, miter gauge and bar, rip fence guide, dado insert, lock knobs, jackscrew mechanism and handwheel, and all other metal parts (less blade). \$21.95  
Same Kit with 10" Combination Blade \$24.90  
Same Kit with 8" Combination Blade \$23.90



## GIL-BILT 12-INCH BAND SAW

- Cuts to center of 24 inch circle
- Handles stock up to 6 inches thick
- 18x18 inch table tilts 45 degrees
- Lower wheel and drive pulley runs on sealed New Departure Ball Bearings; Upper wheel runs on two 5/8" bore Ollite Bronze bearings.

- Upper wheel tension and tilt mechanism of cast aluminum, completely assembled.
- Upper and lower blade guides. Each has ball thrust bearing, self-lub bronze jaws.
- Rigid cast aluminum wheels fully machined ready-to-install. Heavy rubber tires.
- Uses standard 78 inch blades up to 3/8 in. wide.
- Fully enclosed mechanism for utmost safety.

GIL-BILT Metal Parts Kit includes Plans, rubber tires, aluminum wheels, 1/4 in. blade, ball bearing spindle, tilt mechanism, blade guides, table tilt segments, and all other metal parts. \$21.95

Return Kits in 10 days for refund if not satisfied.  
(Prices include postage within 300 miles. Over 300 add 5%)

Also available—Plans and Parts Kit for 18" Band Saw, Belt Sander and 8" Tilt/Table Saw. Order Plans at \$1.00 each—Send postpaid anywhere in the world or write for FREE descriptive catalog.

GILLIOM POWER TOOLS P. O. Box 1-PD, Lambert Field St. Louis 21, Missouri

**BUY from C&H**  
you'll SAVE and be sure

HUNDREDS  
of SENSATIONAL BARGAINS!



### HOT ROD SUPERCHARGER

Extra soup and go at a price you can't afford to miss! Mfr'd by Borg - Warner. Specifications:

7 1/2" deep, 7" high. Wgt. 17 lbs. Compact and sturdy, 4 base mounting holes, 3/4" outlet, 5/8" shaft with female Lovejoy coupling. Priced today at \$85. Our Special SALE PRICE, NEW \$31.00. Used ..... \$18.95

### 80-1 ratio Gear Reducer

Double reduction, reduces 1/6 to 1/2 HP electric motors 1750 rpm to 22 rpm. Reg. \$45. NOW..... \$26.00



**CENTRIFUGAL CLUTCH** — Ball Throw-out type. A or B belt pulley. 3/4" bore \$9., 1" bore \$11.

### DOOR CHIMES and SIGNALS

Durably built Navy surplus door chime or signal call. 115 v. AC, pleasing tone audible at 100 ft. or more. Lists at \$15.00. NEW \$3.95.

### LIGHT PLANTS

300 Watt 110-220 volt AC, Wgt. 40 lbs.—portable \$99  
750-1000 Watt 110v. AC Briggs & Str'n. eng. \$169  
1000-1200 Watt 110v. AC only ..... \$194.00

2500-3000 Watt 110v. AC Slow speed (1800 rpm) Land generator for longer life. Recond'nd and fully guaranteed \$295. NEW \$345

5 KW Plant, 120 v. 60 cycle AC. Lists at \$1800. Our Price \$795. Extra parts & tools \$25. 2 reels of cable & switch \$115. Plant, cable & parts complete \$895. UP TO 100 KW carried in stock — write for complete information.

### ALARM HORNS SIRENS

Heavy duty motor driven; high, med. or low tone, 110v. AC Weatherproof. For alarm or signal horn for boats, school yards, factories, air raids, etc. Lists at \$47. NEW \$24.95



### POWER & HAND WINCHES AT FACTORY PRICES!

For BOATS, TRUCKS, FARMERS, LOGGERS, CONTRACTORS, ETC. Hand Winch, 3-1 ratio, 600 lb. pull, drum has 15/8" spool, 6" flange, takes 75' of 3/16" cable, stop locking pawl, wgt. 26 lbs. ..... \$16.95

Ball Bearing Hand Winch, low ratio 1-1, high ratio 3-1, 600 lb. pull ..... \$29.50  
Same as above with bronze worm gear, 12-1 ratio and hand-brake ..... \$39.50

1/2 HP electric ball bearing model; compact gear box, 12 rpm drum speed. .... \$145.00

3/4 HP, same as above, 3" drum ..... \$165.00

Heavy duty, 10-1 ratio, double drum model with jaw type clutch, wgt. 280 lbs. ..... \$49.95  
CABLE, 1/4" preformed stainless steel aircraft, 100 ft. or less 17¢/ft. Over 100 ft. .... 15¢/ft.

**SEND TODAY FOR FREE CATALOG** Hundreds of \$5 saving buys. These are a few of the many items at sensationally low prices!

Pumps Drop Cords Fire Pumps Clutches  
Grinders Generators Saws Air Tanks

**C&H ELECTRIC MACHINE Co. Inc.**

434½ W. Juneau Ave., Milwaukee 3, Wisconsin

BIG DAILY PROFITS!

### START A BATTERY SHOP!

We show you how to maintain, rebuild and recast junk batteries into new: latest achievement. We supply complete instructions and everything needed.

### BATTERY LABORATORIES

Dept. 453 Minneapolis 4, Minn.

### LUTHY AERO TYPE SPARK PLUGS

#### Aluminum Oxide Insulators

Material developed during World War II for high speed combat aircraft. Aluminum Oxide insulator cools very rapidly, is stronger, has greater resistance to moisture and reduces breakage to a minimum. Correct gap setting and proper heat range for your automobile, truck, tractor, hot-rod and stock car.

#### Packed In Engineered Sets

PACKED IN SETS OF 8 OR 6 - CORRECTLY GAPPED FOR THE MODEL AND YEAR OF ALL CARS

**ORDER YOUR SETS NOW**

#### 8 cyl. set

7.12

#### 6 cyl. set

5.34

Satisfaction Guaranteed

Longer Life More Economy  
High Speed Performance

Luthy Aeronautical Sales Company

JACKSON, MICHIGAN (Canadian address, Box 394, Hamilton, Ontario)

Send me a set of \_\_\_\_\_ plugs. Enclosed is \$ \_\_\_\_\_. Check here if you want us to ship COD.

Name: \_\_\_\_\_ Address: \_\_\_\_\_

Year of Car: \_\_\_\_\_ Make and Model: \_\_\_\_\_



More R.P.M.

More Miles

Per Gal.

Pat. App. For

3  
P  
o  
i  
n  
t  
e  
l  
e  
c  
t  
r  
o  
d  
e

**WAR SURPLUS** AND OTHER BARGAINS

SAVE UP TO 90%



### 25 POWER TELESCOPE

2½ times stronger than binoculars used officially by the U. S. Armed Forces. Feather weight, 7½ ounces. Easy to hold, easy to focus. Ideal for indoor or outdoor sports, vacationing, trips, long distance spotting. Pocket size measures — closed 6¾", extended 15¼". UNI-COATED — assuring buyer that applications of magnesium fluoride have been applied to the interior sides of the VITAL front and rear ACHROMATICS, assuring users brighter, clearer, sharper images than ever before.

\$7.95 ppd.

### LOW VOLTAGE CIRCUIT TESTER

Made for U. S. Ordnance Dept. to rigid specification. Portable steel hand-carrying unit is a self-contained trouble shooting device for making a complete and rapid check of the generator battery circuit, incl. any circuit & voltage regulators. Battery voltage, regulators, cut-out settings & generator performance easily determined. It's great for garages, mechanics, truck fleet owners, boat and marine mechanics. Can be used on any 6 or 12 volt system. Approx. Govt. cost \$175. NEW. Complete with instruction book, only \$32.50. Shpg. Wt. 20 lbs.

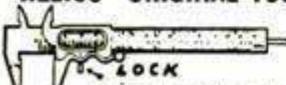


### MICROMETERS

Chrome plated, precision engineered, carefully tooled to give long life. All new 0-1" capacity — \$2.25 ea., 1-2" capacity — \$3.50.



### "HELIOS" ORIGINAL TOOLMAKERS VERNIER CALIPERS



ULTRA PRECISION — Imported for the really critical mechanic who must have the best. Recommended and used by experimental and research machinists at Lockheed, Douglas, Bendix, GM, RCA, GE. ALL NEW and at low, low prices . . . but quantity is limited! Model 51-Genuine Helios. Hardened lapped precision surfaces, 1/1000" and 1/10 mm graduations. Has handy slide roll and thumb lock. Quick, accurate depth. A \$35 value, it's yours complete with leather carrying case for just \$6.95.



### D.C. GENERATORS

Finest aircraft quality . . . heavy duty grease-sealed ball bearings. Terrific for truck and marine use, for welders, plating, D. C. Appliances, lights, etc. ITEM No. 90-Type P-1. Mfd. by Ford, General Electric, Westinghouse and Delco-Remy. Rated 200 Amps., 28 Volts, 2500 RPM., can be "reversed" up to 300 Amps. Shpg. Wt. 53 lbs. Approx. Govt. cost \$350 . . . New to you. . . . \$21.50

**MAKE YOUR OWN ARC WELDER** Complete make-up package consisting of one New PI Generator 200 Amps, one reverse current relay, one voltage regulator and a wiring diagram chart showing conversion of Aircraft Generator to Arc Welder. Nothing else to buy. Special—WHILE THEY LAST—\$32.50

### MAGNETIC BASE INDICATOR HOLDER

For all types of dial indicators with guaranteed ALNICO magnets. V-slotted base has a 45 to 50 lb. pull, permits immediate application without clamps or special attachments and mountings can be made on cylindrical surfaces. For machinists, tool-makers and inspectors. Base 3½" long by 1½" wide. NEW . . . . \$3.50 ea.



### SEND 25c for BIG • NEW • 1953 CATALOG

Bargains for everyone. Check, Money Order or Cash. 25% deposit on C.O.D. orders. Prices F.O.B. Culver City, Calif., unless otherwise stated.

**AIRBORNE SALES CO., INC.**, Dept. PM 353  
8501 Stellar Dr. Culver City, Calif.

**CUTS LINOLEUM — PLASTIC WITHOUT SPLINTERING!**

**MOST POWERFUL JIG SAW of its kind!**

Portable. Any length cuts. Stroke adjustable. QUIET for apartments. SAFE for kids. Ideal for Dad's shop. UL-APPROVED. Dealers, or postpaid. \$24.95.

**SYNCRD**  
ELECTRIC TOOLS

Write for FREE Circular

SYNCRD CORPORATION, DEPT. D-43, OXFORD, MICH.

GUARANTEED ALL  
DURING YOUR  
OWNERSHIP

CUTS  
1 INCH  
SOFT WOOD  
THIN METAL  
PLASTIC



\$24.95

Comes with  
BUILT-IN MOTOR

## Make Your Own!

The Only Tool  
You Need  
Is A Screwdriver!

### DOOR CANOPY—SPECIAL

47½" WIDE

18" DROP

### GRADUATED SIDES

43" PROJECTION

\$21.50—F.O.B. ST. LOUIS



### ASSEMBLE AMERICA'S Most Beautiful ALL-ALUMINUM DOOR CANOPIES AND WINDOW AWNINGS



DIRECT FROM FACTORY

**Save 50%**

They're pretreated, ready for paint. It's easy! Just do the top — the sides are assembled.

Designed and engineered by Herbert's — with experience and machinery to sell you a better awning.

**Also Available Completely Assembled  
With Baked Enamel Finish!**

WRITE FOR FREE MEASURING CHART AND LITERATURE

8974 St. Charles Rd.

**Herbert's**  
ALUMINUM AWNINGS

St. Louis 14, Mo.

## Increase "gas" mileage!

10 DAY  
**FREE TRIAL**  
IN YOUR CAR

- ✓ TEST FOR BETTER MILEAGE
- ✓ BETTER IDLING
- ✓ FASTER PICKUP

PAY ONLY IF  
SATISFIED!



The Amazing  
**GANE**  
AIR FLOW  
NEEDLE  
Gane re-  
places the  
idling adjust-  
ment screw  
in gasoline  
carburetors.

Holes for  
Air  
Flow

Did you know that your engine actually uses a richer gasoline mixture when you take your foot off the gas pedal than when you step on it? When your engine slows down or idles, higher manifold vacuum sucks a far richer mixture through the carburetor than needed even for fast driving. At last, engineers designed the Gane Air-Flow needle to bleed air during high-manifold vacuum periods and thus try to increase gas mileage. Does it work? Of the more than ½ million users, some report up to 25% more mileage, faster pickup, smoother idling. But some swear at them, say: "no improvement" and fire the "little stinkers" back to us—proving Ganes sometimes fail. That's why we invite you to TRY BEFORE YOU BUY.

**SEND NO MONEY! MAKE NO DEPOSIT!**

**PAY POSTMAN NOTHING!**

Just send us your name and address plus make, year and number of cylinders of your car and carburetor make (if you happen to know). Install easily in a few minutes, then check your mileage for 10 days. If you average 2 or more extra miles per gallon, send us \$1.50 per needle. If you don't, send them back and owe nothing. Write:

**NATIONAL AUTO RETAIL DIV., Dept. GP-4**  
9909 Santa Monica Blvd.  
Beverly Hills, Calif.

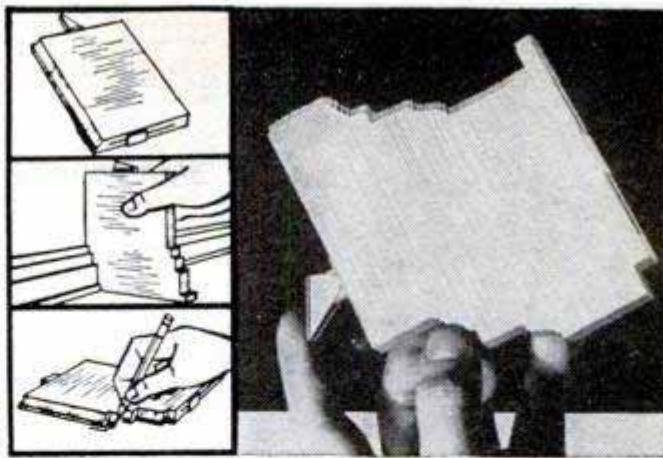
## CONTOUR COPY

Carpenters, Bricklayers, Welders, Mechanics, Linoleum Layers, many, many others—USES UNLIMITED—Every worker needs this NEW Contour Copy. The workman simply releases the easy acting lock, places it against the contour to be copied, then presses each blade forward so they fit snugly. Once locked, the contour outline can be copied onto any desired surface. SIMPLE AND FAST. Made of life-lasting ALUMINUM.

### SIZE      PRICE

4 1/4" x 4 1/4" ...	\$4.00
6 1/4" x 4 1/4" ...	5.80
8 1/4" x 4 1/4" ...	7.60
9 1/4" x 4 1/4" ...	8.50
10 1/4" x 4 1/4" ...	9.40

Special lengths made to order \$1.00 per in.



## W. L. BUSH & COMPANY

1570 NORTHWESTERN BANK BUILDING  
MINNEAPOLIS 2, MINNESOTA

## At Last! A PORTABLE Motor-Welder



### HAS SELF-CONTAINED MOTOR GENERATOR JUST LIKE BIG PLANT UNITS

MOTOR WELD is the only known motor-generator type unit that has its Large Amperage Output, is self-contained, yet has light-weight "Pickup". Portability and sold at transformer price levels. Low cost, economical operation. No special wiring—just plug into any 110 volt AC or DC line (any cycle) and it's ready to use! Its portable POWER UNIT can be used to operate saws, grinders, etc. Other models (150-225 amp.—Cart Models, etc.) available.

Send for FREE Literature

### 10-DAY FREE TRIAL

90-Day Warranty  
On All Machines

Send remittance with order; will ship C.O.D. (\$15 deposit)

GENERATOR SALES CO. • 1627 N. Damen Ave. • Dept. F • Chicago 47, Ill.



### 9 TOOLS IN 1

- ✓ WELDS
- ✓ BRAZES
- ✓ GRINDS
- ✓ SANDS
- ✓ POLISHES
- ✓ BUFFS
- ✓ BRUSHES
- ✓ POWER UNIT
- ✓ CHARGES BATTERIES



SAY YOU SAW IT IN POPULAR MECHANICS

## HOW TO SEAL THOSE PISTONS POWER!

PACK 'EM  
WITH

AT HOME for JUST

**\$3.95**  
POSTPAID

SAVE \$75  
Overhaul  
Your Car in  
10 Minutes!

Read This

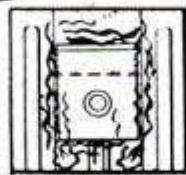
More Gas Mileage or Your Money Back

**GUARANTEED!** Fisher's Compression Seal in the big tube is now used by over 100,000 wise and satisfied drivers who made the simple application in their own garages—and put the \$50 to \$100 apiece they saved in their pockets! Remember—it plates and seals your pistons while you drive. Here's how.

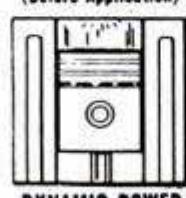
#### BLUE-BRONZE PLATE

FCS and only F.C.F. contains tough, resilient blue-bronze Fisherite which builds up evenly and seals excessive clearance between piston and bore. Detroit has known about it for many years—now it's yours for the first time. The semi-liquid carrier goes up in gas and out the exhaust.

**SIMPLE TO APPLY**—remove plugs, squeeze specified amount into each cylinder, replace plugs and drive. Simple? You bet! **SEND \$3.95 TODAY** in check, cash or M.O. C.O.D.'s Accepted! By return mail we send standard tube of Fisher's Compression Seal (for 6 or 8 cylinder car) plus FREE applicator, FREE test chart and iron-clad guarantee.



POWERLESS PISTON  
(Before Application)



DYNAMIC POWER  
(After Application)



CAR-LIFE SUPPLY CO., Dept. PM-4  
4756 S. CENTRAL AVE. LOS ANGELES 11, CALIF.

APRIL 1953

## Save Hundreds of Dollars with this NEW ALL-METAL ELECTRIC SPRAY GUN—Pay Only \$1 a Week

### ENTIRE UNIT UL APPROVED!

Hundreds of tough tasks are made easy with this NEW, All-Metal Spray Gun. The finished work cannot be told from high-costing professional jobs. Just press the trigger and you're doing the job evenly, cleanly and easily. No compressor needed. Use for spraying paints, including rubber-base paints — lacquers, enamels, varnishes, chemicals, oil, insecticides, deodorants, shellacs; for waxing, rust-proofing, waterproofing, etc. Built for heavy duty. AC current. Entire unit, every part, fully UL Approved, including 8-ft. S. J. Neoprene Cord & Plug Set. Given at no extra cost: 5 extra nozzle discs; 232 pg. "Home Fixit Guide."



25-Oz. Polished  
Aluminum  
Container  
All Metal — No  
Plastic or Glass  
Used!  
This New Model  
Available Only  
from Us.

**\$17.95**

**\$3 DOWN —  
\$1 WEEKLY**

No Carrying  
Charges  
Added

### MAIL 10-DAY FREE HOME-TRIAL COUPON

WALDORF SALES CO., Dept. AG-2404  
363 Central Park Ave., Yonkers, N. Y.

Send Spray Gun, include Free Book. Name \_\_\_\_\_  
Will pay postman \$17.95 plus postage.  
If not delighted can return Spray Gun  
within 10 days for purchase price re-  
fund.

I enclose \$17.95, you pay postage.  
Same refund guarantee.

I enclose \$3 deposit. Will pay at  
rate of \$1 weekly after delivery (no  
carrying charges added).

Will pay wkly.  Will pay monthly.

Address \_\_\_\_\_  
City \_\_\_\_\_  
State \_\_\_\_\_  
APO, FPO, Canada &  
Foreign—No COD's

# The NEW Model 50 UTILITY TESTER FOR REPAIRING ALL ELECTRICAL APPLIANCES-MOTORS

*an all-around electrical trouble shooter*



Handsome round cornered molded bakelite case  $3\frac{1}{8}'' \times 5\frac{1}{8}'' \times 2\frac{1}{4}''$ . Complete with all test leads and instructions.

- Measures A.C. and D.C. Voltages, A.C. and D.C. Current, Resistances, etc.
- Will measure the current consumption while the appliance under test is in operation. The appliance or utility may be plugged directly into the front panel receptacle. A special pair of insulated clip-end leads is included for motors, etc.
- Incorporates a sensitive direct-reading resistance range which will accurately measure all resistances commonly used in electrical appliances, motors, etc. This range will enable continuity checks and tests for shorts and opens.
- Will test thermostats, radio tube filaments, bulbs, fuses, fluorescents, condensers, switches, field coils, circuit breakers, lighting systems, etc.

**\$13.90**

## SHIPPED ON APPROVAL *No Money With Order — No C.O.D.*

Try it for 10 days before you buy. If completely satisfied send \$3.90 and pay balance at rate of \$2.00 per month for 5 months —No Interest or Carrying Charges Added. If not completely satisfied, return to us, no explanation necessary.

SUPERIOR ELECTRONIC CO., INC.

Dept. D-56, 227 Fulton Street, New York 7, N. Y.

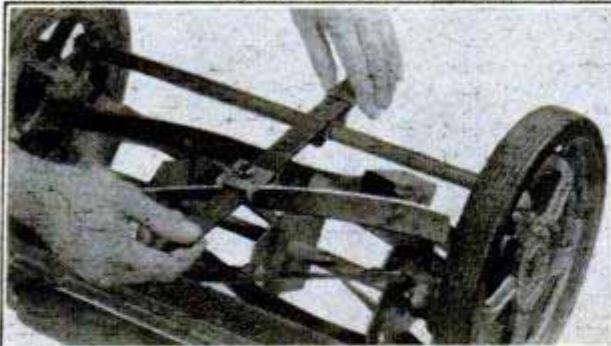
Please rush 1 Model 50. I agree to pay \$3.90 within 10 days after receipt and \$2.00 per month thereafter.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

## Sharpen Your Mower at Home



You can put a razor edge on your hand or power mower at home. This simple sharpener fits any mower, smooths out nicks and rough edges, puts a good edge on blades and cutter bar. Money back guarantee. No COD's please. Send \$2.50 PPD. to

LITTLE GIANT, Box 98B, South Pasadena, Calif.

**GIVE THE HANDICAPPED A CHANCE. USE EASTER SEALS.**



## Start a profitable ARC WELDING BUSINESS!

Earn \$300 to \$500 extra profit monthly . . .

### Build Your Own welder

No big investment needed. Simply hook D.C. or A.C. Generator to your own gas engine or power source.

HOBART BROTHERS COMPANY, Box M-434, Troy, Ohio

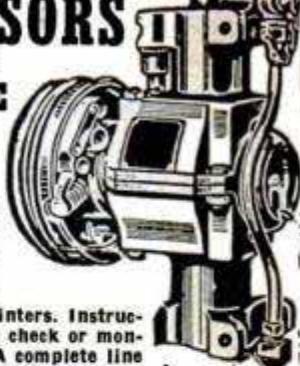
## AIR COMPRESSORS

Portable 2-Cyl. Piston Type

**WESTINGHOUSE**

Reg. \$60.50      **25.95**  
Model T-1 Complete

Brand new surplus special at an amazing low price. Westinghouse double-piston type 6.54 CFM volume, 2" bore,  $1\frac{1}{2}''$  stroke. Runs off power take-off or  $\frac{1}{2}$ -hp motor equipped with the V-type direct-drive pulley and belt. For farm, home, industry, painters. Instructions and parts manual included. Send check or money order (parcel post weight 23 lbs.). A complete line of genuine Westinghouse spare parts.



**AIR HOSE**—to fit, 25-ft. length with fittings & chuck \$4

**AIR PRESSURE TANK ASSEMBLY**, complete . . . . . **\$10.95**  
Includes 6" x 24" tank, 160-lb. gauge, relief valve, tubing, all necessary fittings & hose. Weight 15 lbs.

**NATIONAL EQUIPMENT CO.** 2669 MONROEVILLE ROAD  
TURTLE CREEK, PA.

## ACE TOOLS.



Be permanently  
tooled-up for every operation  
on your Metal Cutting Lathe.

No. 8-A Ace Tool Set  
for 9" and 10" Swing  
Lathes—fits shank size  
 $\frac{3}{8}'' \times \frac{3}{4}''$ . Includes Turning,  
Cutting-off, Boring,  
Knurling and Threading  
Tools with high speed cutters,  
blades and wrenches. 8 complete tools  
in fitted steel case—nothing else to buy  
See your local dealer or order direct.

**ARMSTRONG BROS. TOOL CO.**  
5268 W. Armstrong Ave., Chicago 30, Ill.

**\$26.95**

## PUMP WATER FAST!

DRAIN WASH TUBS, CELLARS, CISTERNS  
IRRIGATE—FILL TANKS—DRAW WELL WATER

Pumps 2800 GPH, 420 GPH at 75' High or 1600 GPH from 25' well. Sturdy, Rustproof Alloy Metal. Six Blade Impeller. Uses any 1/8 to 1/2 H.P. Motor. Will not leak or clog. Fits any garden hose. Immediate **8.95** IN  
Money Back Guarantee. Send Check, M.O., or C.O.D. U.S.

**MOORE MANUFACTURING CO.**  
SWedesboro 1, NEW JERSEY

## ALL-IN-ONE WORKSHOP! 39.95 VALUE

### HEAVY DUTY MILLERS FALLS $\frac{1}{4}$ " DRILL with attachments



Drill, 3 pc. polishing & sanding set,  
4" wire brush, horizontal stand, 4"  
muslin buff, 4" stone,  $\frac{1}{4}$ " wheel arbor,  
6 H.S. drill bits plus steel carrying  
case. (With Jacob's Geared Key  
Chuck—\$2.50 extra.) Send check or  
M.O.; \$2 deposit on C.O.D.'s. Mail orders  
promptly filled, add 75c for postage.

**KAY TOOL CO.** P. O. Box 25, New York 57, N. Y.

**26.95**  
COMP.

## PROTECT TOOLS AND PARTS WITH

an easily applied plastic hot-melt coating that protects tools and metal parts against rust, corrosion, abrasion and shock. 1-lb. can with instructions, 81 plus 20c p.p. L. FRADER, 8318 Roberts Road, Elkins Park 17, Penna.

## PLASTIC STRIPPABLE COATING

BUILD YOUR OWN LIGHT  
PLANT AND WELDER

Free!  
"How to start and  
operate profitable  
welding business."

New "Build  
Your Own" type  
A.C.-A.C. gives  
you both A.C.  
welding and  
A.C. electric  
power for tools,  
lights, etc.



# Worth its weight in **GOLD**

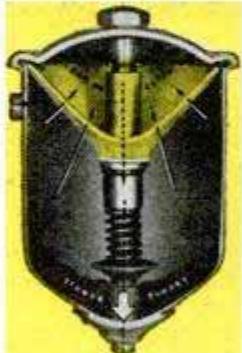
## BRONZE OIL FILTER GUARANTEES:

- ✓ 10,000 Miles Without Changing Oil!
- ✓ 200,000 Miles Without Changing Filter!



engine temperature. FILTERALL allows no loss or bypass and does not rob your oil of valuable protective additives . . . even saves you the quart usually soaked up by old type filter packs. Your FILTERALL high-efficiency filter will pay for itself over and over by saving oil, engine repair and the expense of "old fashioned" filter element replacements. Easy installation for all cars and light trucks—can be transferred to your new car when you trade. To clean, just rinse the bronze cartridge in gasoline. Order your permanent filter by mail today.

Please specify on all orders make, year and model of your car and make of old filter, if any. Postpaid (or send \$2.00 deposit; balance C.O.D.)



FILTERALL Complete Filter Unit for all cars except those few using full flow type..... 1295

FILTERALL Kit for converting your present filter to permanent unit..... 695

FILTERALL Full-Flow type (for foreign cars, some Chrysler models, etc.) Complete heavy duty Model including case..... 1995



**FULL 10  
YEAR  
Guarantee!**

**Dealer inquiries invited**  
**ENGINE PRODUCTS MFG. CO.**  
DEPT. BX-4, 5801 E. BEVERLY BLVD., LOS ANGELES 22, CALIF.

## RED HOT ELECTRIFYING BARGAIN!

### THYRATRON REMOTE CONTROL

SERVICEMEN—HOBBYISTS—HAMS—EXPERIMENTERS—RADIO SCHOOLS



You get the complete set including cabinet and wiring diagram for only

**2.98**

Delivered FREE to your door! no COD's please!

Can easily and quickly be modified for Electronic Remote Control of: Transmitters; Turn Radio and TV on and off; Open and Close garage Doors from your car, etc. Schematic Diagram included at No Extra Cost.

MANUEL KLEIN CO., 94 Chambers Street, New York 7, N. Y., REctor 2-6460

## LOOK AT ALL THE PARTS YOU GET

- 16 Mfd @ 150 Volts
- 1 Mfd @ 200 Volts
- .02 Mfd @ 200 Volts
- .25 Mfd @ 600 Volts
- .25 Mfd @ 600 Volts
- 125 Ohm Variable Control
- 600 Ohm Calibration Control
- 1 Megohm  $\frac{1}{2}$  Watt
- 3 K-Ohm—1 Watt Wirewound
- 925 Ohm—1 Watt Wirewound
- 8 K-Ohm—10 Watt Wirewound
- 2600 Ohm—1 Watt Wirewound
- 75 K-Ohm— $\frac{1}{2}$  Watt
- 1 Megohm— $\frac{1}{2}$  Watt Carbon
- 150 K-Ohm— $\frac{1}{2}$  Watt
- 47 K-Ohm— $\frac{1}{2}$  Watt Carbon
- 2 Megohm— $\frac{1}{2}$  Watt Carbon
- 1 Megohm— $\frac{1}{2}$  Watt Carbon
- 1 Megohm— $\frac{1}{2}$  Watt Carbon
- .24 Ohm—2 Watt Wirewound
- Filament Transformer
- Control Relay
- Switch—SPST
- Pilot Lamp, Type 44
- Neon Bulb—NE-2
- Control Housing
- Bottom Plate
- Escutcheon

## New MOTOR BARGAINS for Home, Farm &

### Industry



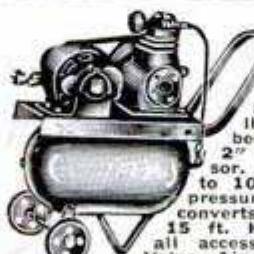
Above are 110 V. or 110/220 V. 60 cy. 1 ph. A.C. Motors. All Motor Prices are F.O.B.

**1/2 H.P.** Dayton, 3450 RPM IND type ... \$18.50 Westinghouse, DBL shafts, 1725 RPM \$22.50 Westinghouse, dbl. shafts, 3450 RPM \$23.50 Eicor, capacitor type ball brg., 1725 RPM \$32.50 General Electric, cap. ball brg., dbl. shafts, 1725 RPM ... \$34.50 General Electric, cap. type, 3450 RPM \$34.50

**3/4 H.P.** SPECIAL BARGAIN OFFER Brand New! 2 H.P. Repulsion Induction Single Phase Late Style—Name Brand—220 V 60 Cy 3450 Rpm 3/4 Shaft ... Only \$65.00. Weight approx. 100 lbs. Write for FAN CIRCULAR: Listing Blades, Guards, Motors, ALL SIZES: Attic, Window or Room Cooler.

**16 TO 1 SPEED REDUCERS** For Display Table—Barbecue Spits—Toy Auto Gear Box—Experimental Uses, Etc. Gears Enclosed in Aluminum Housing. Bronze Gear, Hardened Worm, Input Shaft 3/4 in. Output Shaft 3/8 in. Speed Reducer #R 161 ..... \$3.95 Post Paid

**C. MARSHALL SALES**  
3546 W. Fullerton Ave., Dept. P-4 Chicago 47



**SPECIAL LOW PRICE AIR COMPRESSOR OUT-FIT** for Spraying, Tire Inflation, etc. 1/3 H.P. Heavy Duty 110-V-AC Motor, Cap or Rep/Ind. Type. 8x18 in. Stainless Steel 300 lb. test Tank, mounted on Rubber Tired Wheels with handle. 2" bore x 13/4" stroke Compressor. 2.8 cu. ft. per min. pressures to 100 lbs. Automatic adjustable pressure switch. Quartz Spray Gun converts to bleeder or non-bleeder. 15 ft. Hose and Tire Chuck. Plus all accessories. Check Valve, Safety Valve, Air Pressure Regulator, Air Filter and Gauge. Completely assembled into a Compact Balanced Unit. ... Ready to use. 1/3 H.P. as described above. #A-33. .... Only \$77.50 SAVE \$10.00—1/2 H.P. Outfit K.D. you assemble ... #K-33. .... Only \$67.50

**BIGGER, EXTRA HEAVY DUTY, AUTOMATIC AIR COMPRESSOR UNIT, BIG 1/2 H.P. HEAVY DUTY Capacitor A.C. 110/220-V-Motor.** Giant Stainless Steel Tank, 12x24 inches, 500 lb. test. Bigger Precision Air Compressor, 2 in. bore x 2 in. stroke, 3.5 CFM. pressures to 150 lbs. Big 10 x 175 Rubber Tired Ball Bearing Wheels. DeLuxe Equipped. Safety Valve, Tire Chuck, Gauge, Air Regulator, Air Filter, Quartz Spray Gun. Completely assembled Unit. Ready to use. 1/2 H.P. as described above. #A-55. Only \$107.50 SAVE \$10.00—1/2 H.P. Outfit K.D. you assemble ... #K-55. .... Only \$97.50 ABOVE OUTFITS SHIPPED F.O.B. CHICAGO

## Volume Blowers for Heating, Ventilating, Exhausting



Blowers for forced drafts, heating boosters, exhausters, coolers, dryers, and dust collectors. 110 volt A.C., 50/60 cycle motors. 75 cu. ft. per min. Blower and Motor, Postpaid, Only ..... \$9.75

150 cu. ft. per min. Dust Collector Blower with hi-speed Motor, Postpaid ..... Only \$12.50

250 cu. ft. per min. Blower, 5 in. Wheel, Only ..... \$22.50

Giant Dust Collector, 2000 cu. ft. per min.—14" x 14" x 12" overall. 1/2 H.P., 110 V-AC Motor. Hi-speed 3450 RPM, 6 in. non-clogging Aluminum Impeller. Shipping wgt. 60 lbs. FOB Chicago ..... Only \$55.00



# TEENUTS®

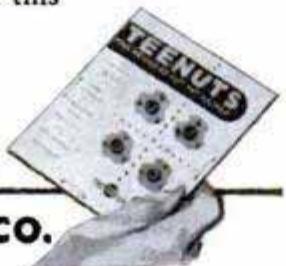
**STEEL THREADS  
IN WOOD!**

Industry proven TEENUTS, now available for home craftsmen . . . provide flush mounting without counter-boring. Excellent for new work or repairs. Ideal for metal-to-wood applications and where old screw holes have become useless. You simply drill hole size of TEENUT barrel, hammer home TEENUT and its steel prongs provide rigid, permanent anchorage. Same size hole for bolt. Complete line to fit standard bolt sizes. Show your hardware dealer this ad. No mail orders please.

**15¢  
AT HARDWARE  
COUNTERS EVERYWHERE**

**COLUMBIA FASTENER CO.**

Chicago 8, Illinois



**\$38 down payment starts YOUR OWN  
high profit BUILDING BLOCK FACTORY  
in your back yard or basement!**

**EARN UP TO \$75 PER DAY!**

#### NOW! Big Building Boom Profits Within Your Reach

You don't need much cash to cash in on the building boom! New high speed, low cost General Block Machine produces up to 1,000 concrete blocks a day for homes, factories, buildings, garages. Your profit markup is 100% to 150%! Fool-proof, easily operated, sturdy steel machine can make any size from 4" to 12". These superior 3-core blocks meet all building code requirements for foundation, chimney, corner, sash and many other types of blocks. Works indoors or out. Sand, cement and water available anywhere! Simple operating instructions and mixing formulas for cement and cinder blocks supplied FREE. Get full details, no obligation!

#### EXTRA!

Amazing illustrated book gives floor plans for 6 sensational concrete block bungalows. Tells how to lay blocks, lay out building lines, mix concrete, build steps, porch and concrete floors all at great savings. Written by experts. Can save many times the cost of the machine! Get it now! No strings attached.



"GENERAL"  
BLOCK  
MACHINE  
Thousands  
Now In Use The  
World Over!  
Only \$218 less motor F.O.B.  
plant. Ship. wt. 400 lbs.

PAY AS YOU EARN!  
small down payment  
MONTHLY PAYMENTS  
as low as **28 33**  
Write Now for FREE Details

HOW TO  
BUILD  
YOUR OWN  
CONCRETE  
BLOCK  
HOME  
Only 1 Prepaid

SEND \$1 — Refunded  
if you buy machine!

**GENERAL ENGINES COMPANY**  
Dept. P-43A, 307 HUNTER STREET, GLOUCESTER, N. J.

**It's a cinch to  
Install!**



## Combustioneer® AUTOMATIC HUMIDIFIER

A few dollars, your own tools, a couple of hours will give your home all the benefits of healthful, protective automatically humidified air! Yes, in your present warm-air furnace—coal, gas or oil! No plumbing necessary!

Exclusive Combustioneer features... Twin-Valves of stainless steel, can't rust, corrode or leak . . . "Noverflow", prevents water dripping inside furnace . . . big "Thirsty-Thick" ceramic plates for larger water evaporation area . . . Selector Dial for positive humidity control . . . Water pan of heavy stainless steel.

**Low Prices!** Model CH-300, 4 plates for 13" to 20" plenum (width or length), \$20. CH-200, 6 plates for 22" to 25" plenum, \$22, F.O.B. Springfield, Ohio. Prices include 10 feet of tubing, saddle valve and adjustable hinge face plate. Immediate shipment. Check or Money Order. Combustioneer DIV.

**THE STEEL PRODUCTS ENGINEERING CO.**  
1277 W. COLUMBIA STREET, SPRINGFIELD, OHIO



# Your Wife Can Help You Paint

**Easily, Beautifully  
With No Experience!**

- Here's How to paint quickly, at low cost, with professional results . . .

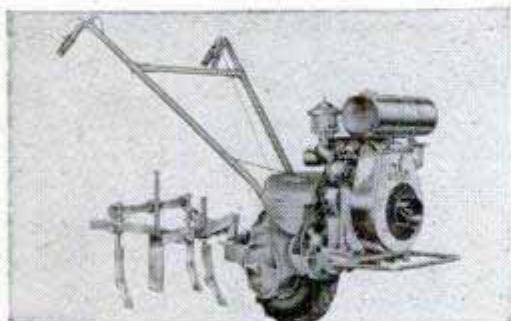


**USE a THOMAS  
Roller and Pan**

Buy it from  
your Paint,  
Hardware or  
Lumber dealer.

**THOMAS PRODUCTS COMPANY**  
8490 LYNDON AVE. • DETROIT 21, MICHIGAN

**Scores of Chores**  
with the multi-purpose  
**CHOREMASTER**  
ONE-WHEEL  
GARDEN TRACTOR



The CHOREMASTER Tractor takes work out of lawn and garden chores year 'round. Anyone can operate this compact, powerful tractor. One multi-purpose CHOREMASTER quickly becomes a low-cost power mower, cultivator, snowplow or sickle bar.

1½ to 3 H.P. Lowas \$154.75 Freight Extra

35 Low-cost Attachments  
Dealers throughout U.S. and Canada  
Write TODAY for dealer name  
and literature.

CHOREMASTER DIVISION  
WEBER ENGINEERED PRODUCTS, INC.  
878 Evans St., Cincinnati 4, Ohio

# BUILD IT FIX IT with AMBROID

- Ready-to-use
- Fast drying
- High tensile strength
- Transparent
- Waterproof

IT STAYS STUCK

Dries entirely by evaporation of the solvent. Quick setting—no distortion. Ideal for assembling, repairing, home crafts, electrical work, factory, workshop or household use. Send postcard for free literature.



Try Ambroid in your business, too. For over 40 years recognized as the leading industrial adhesive of its type.

Art galleries, museums, and leading industrial concerns, rely on AMBROID

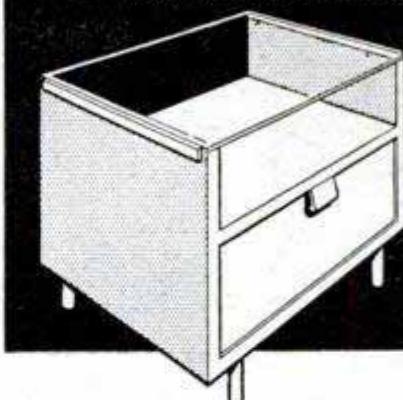
TRY A TUBE TODAY—At most hardware stores and hobby shops. If your dealer cannot supply you, send 25¢ for big 2 oz. tube, postpaid. Money back guarantee.

**AMBROID**

300 FRANKLIN ST.  
BOSTON 10, MASS.

## Modern End Table

DESIGNED BY NORMAN CHERNER



easy to follow  
**Plans**  
only  
**10¢**

From plans to finished job in a single weekend. This smart new table is that easy to build with Douglas fir plywood. All you need are ordinary tools. Douglas fir plywood takes any finish. Won't split, chip or crack. Get step-by-step plans from your lumber dealer or send 10c to Douglas Fir Plywood Association, Tacoma 2, Washington.

## Douglas Fir Plywood

Lumber dealers now have new small-size Handy Panels in self-service racks. Easy-to-use Handy Panels are quality-tested, trademarked Douglas fir plywood.



# WOODS

## Get This BIG Manual And Bargain Book

Loaded with how-to-do it articles on wood-finishing, veneering, making inlay pictures and cabinets. Contains 83 distinct inlay designs and borders, plus a wood identification panel of 60 different varieties. All shown in full natural color suitable for framing.



### A MULTITUDE OF MATERIALS

Veneers	Period Furniture Hardware
Inlays	Modern Picture Frame Molding
Lumber	Upholstery
Plywood	Hand and Electric Tools
Plans	Finishing Materials
Supplies	Decorative Metals
Plastics	Leather

Albert Constantine & Son, Inc.  
Dept. PM-11, 797 E. 135th St., N.Y. 54

- VISIT US at our N.Y. Plant. Demonstrations every Saturday on making inlaid pictures, wood finishing and other crafts. Everyone invited.

## SEND THIS COUPON!

Albert Constantine & Son, Inc., Dept. PM-11  
797 E. 135th St., New York 54, N.Y.

Enclosed find 50c (refunded on 1st order) for  
your copy of "Manual For Craftsmen" No. 52.

Name \_\_\_\_\_

Address \_\_\_\_\_

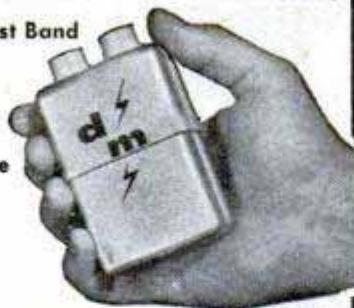
City \_\_\_\_\_

State \_\_\_\_\_

# DYNA-MITE POCKET RADIO

**POWERFUL! PERSONAL! PRACTICAL!**

- Covers Standard Broadcast Band
- Not a Toy
- Batteries and Parts Fit Within Case
- Tiny Acorn Low Drain Tube
- Loud Clear Tone
- 1000 Mile Range
- No Antenna Used for Local Reception
- No Ground Connection Needed
- Picture Diagram for Radio Beginners



**\$5.99**  
Postpaid

This neatly engineered little KIT was designed to give you a real personal, portable radio that you can enjoy anywhere without disturbing others. Use it on camping trips, in bed, in your office or just anywhere. Remember this is not a weak crystal set but a powerful VACUUM TUBE receiver that will give you good local and long distance reception. Set, less batteries, ONLY \$5.99 postpaid. A deposit of \$1.00 is acceptable in U.S. and possessions on COD orders. If batteries are desired we will supply at only \$1.50 per set including extra "A" battery. These are obtainable at local hearing aid concerns.

1,500 ohm Alnico magnet receiver \$1.45 only, when purchased with KIT. All parts fully guaranteed.

Order Today at This Unbelievable Low Price!

**PRECISION ELECTRONICS LABORATORY**  
DEPT. M

PLACERVILLE, CALIF.

best  
white tape  
made

ONLY  
**98¢\***



The new "Evans White-Tape" has everything you'll find in tapes costing over \$1.50-plus.

- snow-white blade with bold, legible, jet-black numerals and graduations. Graduated in 32nds for first 6 inches.
- sturdy die-cast case heavily chrome-plated, calibrated for quick reading inside and outside measurements.
- blade  $\frac{1}{8}$ " wide made of finest high carbon steel—tempered—Bonderized—enamelled—baked.
- blade replaceable in seconds—without tools—without even opening case. And Evans replacement blades cost far less.
- every "Evans White-Tape" is unconditionally guaranteed.
- exclusive Evans automatic brake gives smoother push-pull action with absolutely no "creeping" of tape into case.
- underside is white, too. Mark with ordinary pencil, remove mark with flick of thumb.
- unheard-of low price\*: 10-ft. \$1.49; 8-ft. \$1.19; 6-ft. 98¢. Prices higher in far west and Canada.

**Evans**

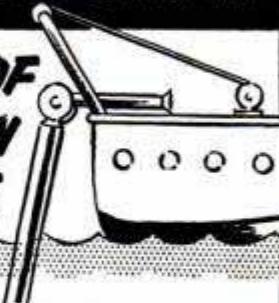
& CO. • Elizabeth, N.J. • Montreal, Que. © 1953

Makers of Evans 6-in. Folding Rule and Folding Yardstick

Sold only through retailers.

# FREE SUNKEN SHIP TREASURE FOLDER

**MILLIONS OF  
DOLLARS IN  
TREASURE**



NEW Guy Underwater Exploration Club Sunken Treasure Folder is yours for the asking. Mail coupon today. No obligation.

No man knows the true value of the millions of dollars worth of sunken treasure lying on the bottom of the Great Lakes.

The Guy Underwater Exploration Club will attempt to recover a portion of this vast treasure, using the new, improved waterscope that will be mounted on the Club's 2000 ton salvage ship, "Treasure Unlimited". Don't wait. Mail coupon below.

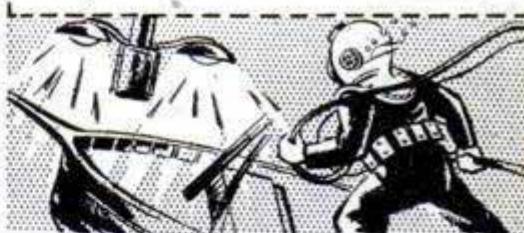
**GUY UNDERWATER EXPLORATION CLUB**  
602 Ford Bldg. Detroit 26, Mich.

Please send me without obligation, new sunken treasure folder.

Name \_\_\_\_\_

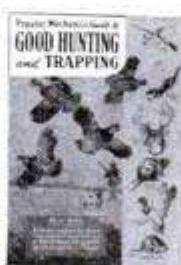
Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



**Say You Saw It in  
POPULAR MECHANICS**

## Get These New Books From Your Favorite Newsstand



Guide to Good Hunting and Trapping by Joe Godfrey, Jr. This well-known sportsman has written this book for the thousands of hunters and trappers in the United States. It tells where, when and how to hunt and trap. There are hundreds of illustrations, photos and drawings..... **75c**



Shop Notes 1953. The latest edition of this famous annual. Exclusive article, "A Short Course for Lathe Operators." Hundreds of time and money saving hints and kinks..... **\$1.00**

**Popular Mechanics Press, 200 E. Ontario, Chicago 11**

*Goodbye pedaling  
hello FUN!*



*get a WHIZZER NOW!*

It's time you graduated from a bike to a motorbike. Get a Whizzer! Big, powerful motor, plenty of speed and comfort in Whizzer's engineered frame. It's a complete motorbike!

**HAVE YOUR OWN DELUXE TRANSPORTATION.** With a Whizzer, you ride wherever you want to go, whenever you want, long trips, short trips, on pavement or trail.

Whizzer is easy to buy, economical to operate, thrilling to own. See Whizzer motorbike **NOW** at your dealer's.

• 3 h.p. • 535 m.p.h.  
• up to 100 miles per gallon

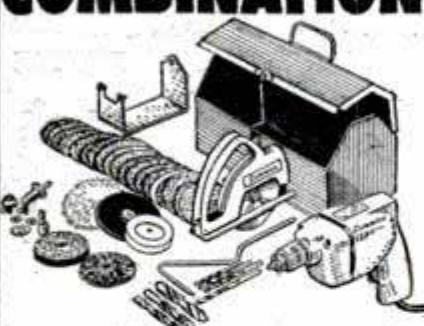
**WHIZZER MOTOR CO., 302 S. Sanford, Pontiac, Mich.**

## HELPFUL BOOKS

Send post card asking for FREE catalog

Popular Mechanics Press, 200 E. Ontario, Dept. 601, Chicago 11

## The New Improved Model 38-98 DYNAMIC POWER TOOL COMBINATION



**INCLUDES:** Cummins 1/4" Pistol-Grip Electric Drill; Cummins Saw Attachment; Combination Saw Blade; Set of Drills; Lamb's Wool Bonnet; 13 Sanding Discs; Steel Arbor and Attachments; Cloth Buffing Wheel; Grinding Wheel; Wire Wheel Brush; Steel Paint Mixer; Steel Bench Stand; Portable Steel Carrying Case.

Price of Dynamic Power Tool Combination complete is \$29.95

## SHIPPED ON APPROVAL No Money With Order — No C.O.D.

Try it ten days before you buy. If completely satisfied then send \$4.95 and pay balance at rate of \$5.00 per month for 5 months — No Interest or Carrying Charges Added. If not completely satisfied, return to us, no explanation necessary.

**KAPNER HARDWARE, INC.**

Dept. A-68, 2248 Second Ave., New York 29, N. Y.

Please rush 1 Dynamic Power Tool Combination. I agree to pay \$4.95 within 10 days after receipt and \$5.00 per month thereafter.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

Zone \_\_\_\_\_ State \_\_\_\_\_

**Do a better job EASIER... FASTER**



• "Super-adjustable" wrenches for fast sure fit... durable service.

• Streamlined "Super-ratchet" has weight distributed for perfect balance. Slim, extra-strong.

**Be Wise... Buy  
WILLIAMS  
TOOLS**

**Correctly Designed and Drop-Forged  
of Finest Selected Alloy Steels**

• The feel, fit and finish of Williams Tools tells you there are none finer at any price. Designed and made by specialists, "tested" and preferred by leading industrial and automotive mechanics for over 70 years... they have extra strength and durability.



**WRITE FOR FREE CATALOG A-50**  
describing the complete line of WILLIAMS  
alloy tools sold through Industrial Distributors,  
Automotive Jobbers and leading Hardware Stores.

**J. H. WILLIAMS & CO. 500 Vulcan St., Buffalo 7, N.Y.**

**ACTUAL \$10 SAVING!**

**★ 8-PIECE POWER TOOL SET ★**

For shop, basement, attic, garage!

**1/6 H.P. MOTOR** (reconditioned G.E. or Westinghouse) Arbor Stand, Pulley, Belt, 3/4" Chuck, Cloth Wheel, Grinding Wheel, Wire Wheel

Limited quantity at this low price. Send check or money order, 25% deposit on COD's. 10-day home trial at our risk. Price includes shipping cost.

TIGER, 607 Michigan Ave., Detroit 26, Mich.

## BARRON Drill Press TOOLS



### ROTARY PLANER

Planes • Rabbets  
Tenons • Panels  
Routs • Bevels

**Only \$7.50  
COMPLETE**

### FOR WORKSHOP AND INDUSTRIAL USES...

• Over 40 precision built woodworking tools and accessories... Hi-Speed Router Bits—Rotary Surface Sanders & Drum Sanders—Safety Shaper Cutters—Dovetail Cutters—Large Auxiliary Metal Tables—All Metal Shaper Fences—Spindle Adapters—Handy Bench Vises. Many other items indispensable for accurate, useful, versatile workshop use. Every tool sold on complete satisfaction or your money back. See your Barron Dealer. Ask for special folder—"24 Extra Uses for Your Drill Press."

**BARRON TOOL CO. INC.**  
365 Architects Bldg., Detroit 1, Mich.

**FREE**  
Workshop  
Guide &  
Catalog

# NOW! SAW 2x4'S IN ONE EASY CUT WITH NEW LARGER 'ARCO-SAWS'

Amazing New Safecut  
Blade Allows Any 1/4"  
Drill To Whiz Thru  
Heavy Lumber, Wall-  
board, Plywood, etc.

AT  
BETTER  
HARDWARE  
STORES  
EVERY-  
WHERE

**ARCO  
SAW**

No. 455  
"ARCO-  
SAW"  
For Depth &  
Bevel Cuts.  
**\$12.50**

with ALL GAGES & 5"  
"ARCO SAFECUT" Blade.  
No. 454 "ARCO-SAW"  
For Straight Cutting.  
Same as above, less gages.  
**\$10.95**

Gages for cuts to 1 1/4"—bevels from 0 to 45°, Adjustable Rip  
Gage & Visual Guide, Sturdier and Easily Adjusted Safety-Yoke  
keeps drill steady. Worm Drive Clamp releases drill in seconds.  
Precision Gear Box with Steel Gears.

90-DAY FACTORY GUARANTEE

REPLACEMENT BLADES: Specify 5" Safecut,  
or Combination, or Rip, or Crosscut Style.....

**\$1.75**

## NEW! 'ARCO SAFECUT' SAFETY SAWBLADES



The Safest, Fastest Cutting Sawblade Ever  
Made! Made of finest tempered tool steel. No  
"Kick-back" accidents—cannot drag hand  
into blade. Easily and quickly resharpened  
with ordinary handfile.

6-inch  
Blade... \$1.75      7-inch  
Blade... \$1.95      8-inch  
Blade... \$2.15  
Special Boxes for Skil, Mail, B & D Saws — Add 30¢  
10-DAY MONEY BACK GUARANTEE ON ALL ITEMS

BUY THE BEST—see your hardware dealer now! Don't accept  
inferior substitutes—if not available  
send us check or M.O. (Postpaid).  
C.O.D.'s—postage extra.

**ARROW METAL PRODUCTS CO.**

Dept. PM-4, 140 WEST BROADWAY, NEW YORK 13, N. Y.

## CHANGE PING TO POWER!

INSTALL IT YOURSELF IN 2 MIN.

No special tools needed.

## SAVE \$ ON GAS

Nothing Like It! Amazing. Easy to Install  
Patented PING-OUT Compensating Control  
Valve gives smoother performance on cheaper  
gas, longer life for your motor. Gets rid of ping  
by synchronizing ignition to engine speed; gives  
you FAST GETAWAY WITHOUT DAMAGING  
KNOCK! PING-OUT is expertly engineered,  
has passed severe tests under all conditions.  
Fits any engine. Full price, only \$2.95.

MONEY-BACK GUARANTEE. If it doesn't satisfy,  
return in 10 days for FULL REFUND.

**P-B PRODUCTS** Dept. 1A  
7958 Beverly Boulevard  
Los Angeles 48, California

DEALER AND JOBBER INQUIRIES INVITED

Fits On Line Between  
Distributor & Vacuum

BE A SMART  
HAPPY CAR OWNER!  
Send for PING-OUT TO-  
DAY! Send \$2.95 and we'll  
rush it to you post-paid.  
Order C.O.D. pay postman

**\$2.95**  
plus C.O.D. postage.



Turn Switch OFF



Light Stays ON



Goes OUT in 1 Minute

## NEW! D-E-L-A-Y-E-D A-C-T-I-O-N LIGHT SWITCH HAS 1000 USES!

No more groping in the dark with this  
new switch that gives you almost a full  
minute of extra light after you turn  
it off. You'll use it on porches and base-  
ment stairs; in bedrooms; on the farm; in  
industry. Gives "locking-up" light; pro-  
tects watchmen; encourages employees to  
turn out lights. It's easy to install; fits  
any wall switch opening. Snaps on like any  
switch—then stays on when turned "off";  
goes out automatically almost a minute  
later. Underwriters approved. Money-back  
guarantee. Order several today!

Only \$2 each; 3/\$5, Postpaid

Dealer Inquiries Invited

**A-1 Electric Supplies Co.**  
3417 S. E. 50th Avenue  
Portland, Oregon



## Build your own JET ENGINE!

Order these plans today



SEND  
NO  
MONEY

1. JET PROPELLED BICYCLE. Assemble  
your own. Photo and instructions, \$1.00.
2. HOW TO MAKE EXPERIMENTAL JET  
ENGINES. Seven sheets drawings with  
information and instructions \$2.95.
3. BOTH OF ABOVE in one order \$3.75.

SEND NO MONEY. Order both at once  
\$3.75 C.O.D. in USA plus c.o.d. postage.  
Send check or Money Order and we pay post-  
age. Get other information too. Rush Order.

**J. HOUSTON MAUPIN, Dept. 55, Tipp City, Ohio**

## VARIABLE SPEED

HYDRAULIC POWER  
TRANSMISSION



It has Infinite Speeds 0 to 550, Reverse,  
Automatic Overload Protection; Adjustable  
Torque up to 180 inch pounds. 5/8" Input  
and Output Shafts. It will handle 1/4 to  
1 1/2 H.P. Motor. Case measures 7 1/2"  
long, 7" high 6 1/2" wide. VALUE OVER  
\$300. Shipping Wt.  
25# On C.O.D. Orders  
we require a 10% only **\$54.50**  
Deposit. Fob. Chicago

DIRZIUS MACHINE SHOP "A" 1423-25 So. 52nd Ave., Cicero 50, Ill.

## MAKE BIG MONEY Sharpening Lawn Mowers

SPARE  
OR FULL  
TIME

Mr. G. E. of Ark. writes, "I have had my Universal  
Grinder 2 mos. and made a net profit of \$227." Be  
your own boss in a business of your own in your  
garage or basement with the Universal Lawn  
Mower Grinder. No experience necessary.  
Send today for proven success plan FREE.



**ROGERS MFG. CO. Dept. M-43 LINDSEY, OHIO**

## KEUFFEL & ESSER

### "WYTHEFACE" Steel Tapes

At Less Than Half  
Their Original Cost

#### FEATURES

- BLACK ON  
WHITE MARK-  
INGS. EASY TO  
READ.
- MARKINGS IN  
FEET, INCHES  
AND 1/16ths  
SHOWS THE FT.  
NUMBER AT  
EVERY INCH  
IN RED.
- HARD-WEAR-  
ING RED LEATH-  
ERITE CASE  
WITH NICKEL-  
PLATED  
MOUNTINGS.



BRAND NEW Fully Guaranteed.  
This tape has been preferred for  
years in the industry. A perma-  
nent & durable measure built to  
last years and years.

50 FT. (Formerly  
\$7.50) **3.95** Parcel  
Post 25c

100 FT. (Formerly  
\$12.50) **5.50** Parcel  
Post 25c

No C.O.D.'s, Send Check or Money Order

**JOB LOT TRADING 53 Vesey St. NYC**

## BUY WELLWORTH PRODUCTS

AT SAVINGS UP TO 75%



**RED SEAL CONTINENTAL GAS ENGINE**  
Red Seal, 2 HP with 6 to 1 reduction gear.  
Operates at 450 R.P.M. For lawn mowers,  
scooters, garden tractors, pumps, compressors,  
generators, etc. List Price  
\$79.50. Shipping wt. 54 lbs. **\$47.50**  
Same engine,  
3600 r.p.m. ....  
SAME, 2½ H.P. .... **\$47.50**  
**\$62.50**

### WELLWORTH AIR COMPRESSORS

Aluminum piston, stainless steel valves, 3 piston rings, bronze bearings, splash lubrication. Intake muffler. V-belt, cast iron fan cooling flywheel.

**Model W800 COMPRESSOR** 2" x 1¾". 2.8 c.f.m.  
Operates with ¼ HP or ½ HP motor up to 150 lbs. Weight  
20 lbs.

Special price.....

**Model W200 COMPRESSOR**

2½" x 2". 2.55 to 4.80 c.f.m.  
up to 150 lb. pressure. Operates with  
1/3-1/2-3/4 HP motor.

Special Price.....  
Shipping wt. 24 lbs.



**Model W7 COMPRESSOR**  
2 cylinder 2½" x 2". 5.10 to  
8.50 c.f.m. up to 150 lb. pres-  
sure. Operates with  
3/4-1-1½ HP motor.  
Special Price.....  
Reg. Price \$67.50.  
Shipping wt. 45 lbs.

### AUTOMATIC COMPRESSOR UNIT WITH 22 GALLON TANK

1/3 H.P. heavy duty capacitor  
motor. 110 volt A.C., com-  
pressor 2" bore, 1¾" stroke,  
piston type, splash feed lubri-  
cation. 14" x 32" tank, automatic pressure  
switch. CFM 2.8 at 100 lb. pressure. Check  
valve, safety valve, air regulator with gauge  
and filter, 20 ft. air hose with air chuck for  
inflating tires. V. belt drive. Ball bearing  
wheels, with 2" x 8" rubber tires. Portable  
with handle. Ship. wt. 150 lbs.

With 1/3 h.p. motor  
Reg. price \$175

**\$98.50**

With 1 ½ h.p. gas engine  
Reg. price \$200

**\$124.50**

Regulator, gauge  
and filter sold  
separately. Price  
for the 3 items... **\$8.95**

### 1/20 H.P. MOTOR

12,000 RPM, 110 V. a.c.-d.c. 3/16" shaft. Fan cooled.  
Ideal for high speed uses. Wt.  
2 lbs.... **\$7.95**



### GEAR HEAD MOTORS

Right Angles

110V.. AC

1/30 h.p. 6 RPM

1/30 h.p. 135 RPM

1/30 h.p. 1250 RPM

**9.50**

**10.25**



PRICES F.O.B. CHICAGO. MONEY BACK GUARANTEE. SEND CHECK OR MONEY ORDER TODAY. WRITE FOR FREE CATALOG OF LIGHT PLANTS, GENERATORS AND HOME WORK SHOP EQUIPMENT.

1832 S. Wabash Ave. Dept. D-453

Chicago 16, Ill.

### COULD YOU MAKE THIS COMMON DRIVING ERROR?

• Motorists looking for a roadsign often miss it by passing another vehicle when approaching the sign. This, and other common errors, mean lost miles... unless you have a Hull Auto Compass, for a constant check on directions.

WRITE FOR  
LOCAL DEALER'S NAME.  
FREE LITERATURE

**Beaconlite** \$6.95  
Illuminated  
**STREAMLINE** \$4.95  
non-illuminated

**HULL MFG. CO.**  
P. O. BOX 246-D4 WARREN, OHIO

**CRESCENT TOOLS**  
Give Wings to Work

ASK YOUR  
HARDWARE  
DEALER

### If You Only Have a Minute and Need a Shine use "SHUMIT"

That's all you need to give your shoes that well groomed look. No more fuss with daubers or brushes. Slip "Shumit" over your hand. Apply neutral wax attached to one side, wipe to slick shine with other side. Special "monkey-face" fabric makes it easy. One "Shumit" can be used over 100 times on any color shoes. Just having one handy is worth the price alone. Carry it with you or keep in desk or home. Only \$1 postpaid. Order yours today. Use for 10 days. If not delighted, return for full refund.

**ANCHOR SALES, Dept. D-17**  
11 EAST HURON ST. CHICAGO 11, ILL.

### HANDIEST CABINET EVER MADE FOR STORING SMALL PARTS

What a relief! No more frantic searching for misplaced items. No other cabinet has so many desirable features. Maximum strength, crystal-clear plastic drawers can't spill accidentally. Strong, all-steel welded cabinet with baked-on gray finish. 32 drawers subdivide into 96 compartments — lengthwise or crosswise. Drawers 5 7/8" long, 2 3/4" wide, 1-7/16" deep. Sent complete, postpaid. Money back if not satisfied within 10 days. Free catalog on other sizes.

15 1/4" high, 12 1/2" wide, 6" deep

Model J-32 Illustrated

**CONTENTS**  
**VISIBLE**  
Crystal-Clear  
Drawers



Mfd. by **AKRO-MILS, INC.** 818 E. MARKET ST.  
AKRON 5, OHIO

### SMALL! POWERFUL!

America's finest low cost tractor. Ruggedly built. Easy to operate. No belts, no chains. Borg-Warner clutch, trans. and diff. 140 to 1 reduction. 40% more drawbar pull than ordinary tractors. 8-1/4 H.P. engine—gasoline or kerosene. 20 quick change implements. Write for complete details.

**ENGINEERING PRODUCTS CO.**  
915 K-4 Niagara Ct.  
Waukesha, Wis.



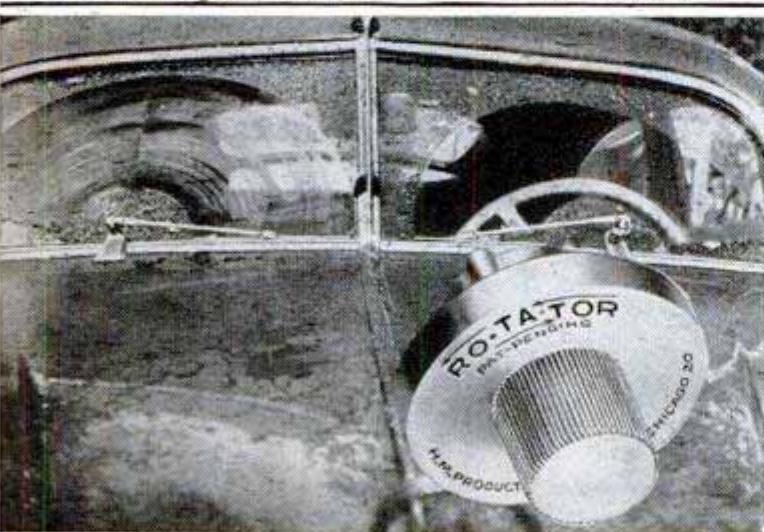
### STREAK ELIMINATOR

The RO-TA-TOR easily installed between windshield motorpost and wiper arm. This automatically shifts blade to new wiping positions at the end of each stroke, which ELIMINATES STREAKS. Thousands sold from coast to coast.

### NO MORE SMEARY WINDSHIELDS

Insures clearer vision, safer driving in any weather. Install it yourself in 5 min. When ordering, SPECIFY MAKE, YEAR OF CAR. \$1.25 each, \$2.00 set of two (includes postage). No C.O.D.'s please. Money gladly refunded if not satisfied. Order yours TODAY. Send check or money order or write for information on how to go into business for yourself merchandising this amazing new invention. Distributors and agents also wanted.

**H & M PRODUCTS**  
11059 S. Hale Ave. Chicago 43, Illinois



# Schupack's AMAZING TOOL BARGAINS! ALL BRAND NEW MERCHANDISE



112 PIECE ASSORTMENT \$3.95  
FOR ELECTRIC GRINDER  
\$10.00 VALUE - ONLY

Here's what you get: Mounted Stones on 1/8" mandrel, Drum Sander, Sanding Sleeves for sander, Rotary Cutters, Wire Scratch Brush, Bristle Brushes, Circular Saw, Buffing Wheel, Grinding Wheel, Rubber Polishing Wheel, Cut-off Wheels, Rubber Cylinders, Mandrels to fit above tool, sanding Discs, Sharpening Stone, etc.



18 ROTARY CUTTERS  
\$13.50 Value \$5.85 Post-paid

Assorted sizes cutter on 1/8" or 3/32" shank. Will fit all hand grinders. Ideal for cutting wood, metal, or plastic. Brand new.



12 MINIATURE CUTTERS \$1.00 Post-paid

FOR CUTTING WOOD, PLASTIC, or METAL Actual size. Assorted shapes on 3/32" shank. For die makers, home workshop, etc.

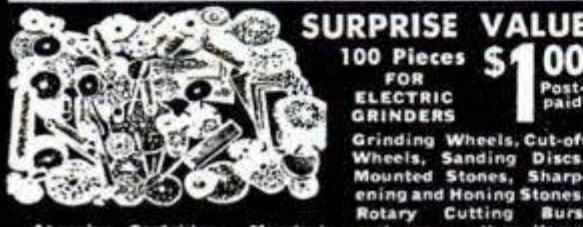


7 HIGH SPEED TWIST DRILLS \$1.00 15 DRILLS FOR ONLY \$2.00! Order Today!

Post-paid

7 Popular Sizes—up to 1/4". Brand new, ideal for home or shop use. Fits all standard chucks.

5 DRILLS FROM 1/4" to 1/2" DIAMETER—\$1.95



SURPRISE VALUE

100 Pieces \$1.00 Post-paid

FOR ELECTRIC GRINDERS

Grinding Wheels, Cut-off Wheels, Sanding Discs, Mounted Stones, Sharpening and Honing Stones, Rotary Cutting Burs.

Abrasive Cartridges, Mandrels, and many other items.

Woodworkers' Drills  
Sensational Value at  
**\$2.00 P.P.**  
4 drills, from 5/16" to 1 1/2" with 3/4" shanks. Brand new, popular sizes.



1953 Illustrated Catalog 10c

FLEXIBLE SHAFT — ONLY \$4.95

Fits all electric drills & hand power tools. 35 1/2" long. Oilitte bearing steel wire in flexible steel casing. Will accommodate tool shafts up to 1/8" dia. For lathe, electric drills, etc.

2 DRUM SANDERS \$1.50  
With 12 Bands in Assorted Grits. 1/2" dia. x 1" long on 1/8" arbor with 12 bands. ONE DRUM, 1" DIA. x 1" LONG ON 1/4" ARBOR WITH 6 EXTRA SLEEVES \$1.00 Post-paid

12 MOUNTED WHEELS AND POINTS ON 1/8" MANDREL \$2.95 Post-paid  
For grinding on plastic, wood soft and hard metals. Regular \$5.40 List Val. 12 wheels on 1/4" Mandrel \$3.60

18 MOUNTED POINTS ON 3/32" MANDREL \$2.50  
18 GRINDING WHEELS AND RUBBER POLISHING WHEELS UP TO 1" DIA. FOR GRINDING & POLISHING METALS, PLASTIC, WOOD. WITH ONE 3/32" MANDREL. \$1.00

10 CUT-OFF WHEELS 1 1/2" DIA. WITH 1/8" MANDREL \$1.00

20 ABRASIVE ROLLS, CLOTH, AND 1/8" MANDREL FOR GRINDING, SANDING, DEBURRING METAL, PLASTIC, WOOD OR RUBBER. ONLY \$1.00 Post-paid

ADAPTER CHUCK WITH 2 INTERCHANGEABLE COLLETS, OPENING FROM 3/32" TO 0. 1/8" MANDREL. \$1.50 Post-paid Price each only.

2 CIRCULAR SAWS ON 2 MANDRELS — ALL AT ONE LOW PRICE \$1.50 Post-paid  
1" DIAMETER SAWS ON 1/8" MANDREL. FOR CUTTING WOOD, PLASTIC, OR SOFT METALS. ORDER AT ONCE! SEND CHECK OR MONEY ORDER.

SCHUPACK SUPPLY CO., 7331 COTTAGE GROVE AVE., DEPT. M-41 CHICAGO 19, ILL. SEND CHECKS OR M.O. NO COD'S PLEASE

## IDEAL FOR HOME CRAFTSMEN...

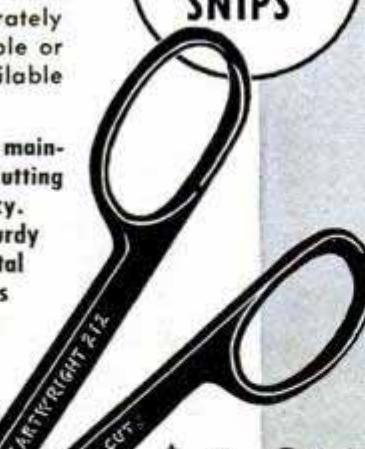
### PRECISION SHEET METAL WORK

Proved in aircraft plants to be best for cutting metal accurately to guide lines of any simple or complex pattern. Now available for home workshops.

- exclusive tension washer maintains uniform tension on cutting edge for precision accuracy.
- lightweight, powerful, sturdy
- cuts 20 gauge sheet metal
- exclusive no-pinch handles
- cuts perfect circles left or right
- cuts square points left or right
- cuts straight work faster, easier
- 2 1/2" blades
- 12" overall
- wt. 2 lbs.

Exclusive territories open for representation

with  
**TRU-CUT®**  
SNIPS



**\$4.95**

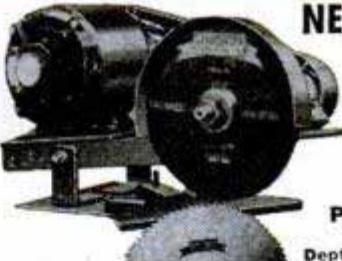
Post Paid

At your Hardware Store or

**ORDER DIRECT**

SINCE 1885

**J. CARTWRIGHT & SON**  
MALAGA, CALIFORNIA



### NEW SAW SHARPENER

Improved #64 Hand Gummer sharpens all types circular saws 4" to 20" diam. Ideal for saw shops. Self-Centering adjustment for quick, easy set-ups. Complete with 1/4 HP motor, 1 grinding wheel & cord. \$79.50 FOB Portland. Wt. 70#. SEND FOR FREE LITERATURE.

P. T. HOBBS MACHINERY  
8375 N. INTERSTATE AVE.  
Dept. P.M.-61, PORTLAND 17, OREGON

### \$2.95 EACH OR 2 FOR \$5.00!



Telephones tested and guaranteed. Complete line of dial, magneto, extension telephones. Write for list.

Telephone Engineering Co.  
Dept. 9 Simpson, Pa.

SAY YOU SAW IT IN POPULAR MECHANICS



**OVER 700% PROFIT!  
WITH THE  
PDQ CHAMPION PHOTOMASTER**

Makes finished pictures in 2 minutes. Takes and finishes 30 to 40 everlasting, black and white or sepia photos an hour. No dark room. Guaranteed not to fade. Photos taken on "SUPER SPEED" direct positive paper. Picture size 2 1/2x3 1/2 in. Complete, easy-to-operate portable photo studio. Size 4 1/2x5x10. Wt. 6 lbs. 700% PROFIT. Write quick, get details about the great PDQ CHAMPION PHOTOMASTER.

**PDQ CAMERA CO.**  
Dept. PM-4 CHICAGO 16, ILL.

## RADIO BARGAINS

### RADIO MIX



Ideal for 'ham' operators, experimenting, etc. Mix contains: Headset, mike, button, trans. wire, insulators, switches, condensers, rheostats, terminals, jump cable, etc. 249  
8 packed lbs.

### RADIO ANTENNA REEL



For tuning beam antenna, opening and closing doors, etc. Powered by 1/8 HP, 24V, GE motor, engaged to a gear reduction only when electrical contact is made. Operates in either direction. Ideal for an auxiliary power take-off. Has 150 RPM at take-off. NEW 875 USED 675

### AIRCRAFT CABLE

Rust resistant, alloyed steel. Extra flexible. Pre-formed, 7 x 19 strand. On reels 1/16" - 4 1/2 ft. (7x7) 7/32" - 11 1/2 ft. 5/64" - 5 ft. (6x7) 1/4" - 12 1/2 ft. 3/32" - 5 1/2 ft. (7x7) 9/32" - 15 ft. 1/8" - 7 1/2 ft. (7x19) 5/16" - 16 1/2 ft. 5/32" - 8 1/2 ft. " 3/8" - 18 1/2 ft. 3/16" - 10 1/2 ft. " 1/2" - 20 ft.

#### Stainless Steel Cable

1/16" - 7 ft. 5/32" - 20 ft. 1/8" - 18 ft. 3/16" - 23 ft. Bronze Cable - Not Pre-formed 1/16" - 5 ft. 5/16" - 23 ft. 1/4" - 17 ft. 1/2" - 38 ft.

#### CABLE ASSEMBLIES

Originally made for aircraft controls. Equipped with integral fittings at both ends. Rust-proof. 7 x 19 strand.

1/16" x 20 ft. with turnbuckle ends. Two lengths for Only 159

3/16" x 8 ft. with threaded stud at one end & eyelet on other. 3 lugs. 159

3/16" x 18 ft. with turnbuckle ends. Two lengths for Only 189

3/32" x 49 ft. Made of 2 lugs. of 17 ft., with turnbuckle ends, and 2 lugs. of 3 ft. with 1 turnbuckle and 1 clevis end. One complete length Only 198

### NYLON ROPE

5/8" diameter. 16 strand. Easy to handle. Extra strong. Long lasting. A bargain at ... 21¢ PER FT.

NYLON SHROUD LINE (Parachute) Approx. 1/8" in dia. TEN - 15 ft lengths. 295

### PRESSURE TANKS

G-1 Type - Stainless Steel, shatterproof & rustless. Has reinforcing ribs and is pressure tested up to 400 PSI. Has high safety factor. Both ends have 1/4" pipe ports.

Ideal for use as a buoy, drinking water supply, underwater fishing, diving, painting, cooking, or spraying.

G-1 - 12 1/2" x 24" ONLY 1095  
D-2 Tank- 500 cu. in. cap. 325  
A-4 Tank- 104 cu. in. cap. 125

### HIGH PRESSURE BOTTLES

Tested to capacities of 3000 PSI. Ideal spraying, welding, inflating, etc. For use with AIR or GAS.

H-1A - 2 7/16" dia., 10" long. 229  
H-5 - 3 1/4" dia., 19" long. 395  
H-7 - 5" diameter, 19" long. 745

## SAVE UP TO 85% ON WAR SURPLUS FROM WORLD FAMOUS 'GADGETEER'S HEAVEN'

### TREMENDOUS SAVINGS ON PALLEY HYDRAULICS

Here at Palley's we carry the WORLD'S LARGEST supply of special Hydraulic Equipment. Our huge stocks of Hydraulic Cylinders alone feature over 20,000 units in 61 sizes and types. We also stock thousands of accessories such as Hydraulic Pumps, Transmissions, Valves, Tanks, Fittings, Hose, etc.

### HYDRAULIC CYLINDERS

No. 3 - Double Action Cylinder. Bore is 1", shaft 1/2". Stroke adjusts from 2 1/2" to 4" with internal sleeve stops. Length overall 8 1/2". Will lift 1500 lbs. continuous - 3000 lbs. intermittent. Will lift or push 1100 lbs.

575

No. 42 - Double Action Cylinder. Bore is 3 1/4", shaft 1 1/8". Stroke 9 1/8". Length 17 1/2". Lift capacity with 1500 PSI line pressure approx. 12441 lbs.

1875

No. 4 - Double Action Cylinder. Bore 3", shaft 1 1/8", stroke 3 1/2", length 8 1/4". Life capacity with 1500 PSI line pressure 10500 lbs.

1875

No. 53 - Double Action Cylinder. Bore is 2 3/8", shaft 1 1/4", stroke 15%, length 26". Gives 6645 lbs. lift with 1500 lbs. line pressure.

2050

No. 29 - Double Action Cylinder Special. Gives 20,000 lbs. lift with 1500 PSI line pressure, or will give 40,000 lbs. thrust on intermittent 3000 lb. line pressure. Has 4" bore, 1 1/2" dia. piston shaft, 18" stroke, 30 1/2" length. Ideal for presses, road, farm and shop equipment. Cost Gov't \$390.

2995

Send 25¢ Today for Illustrated Catalog of thousands more Hydraulic Bargains.

**BENDIX HYDRAULIC PUMP AND MOTOR**

1395

Has 3 1/2 GPM capacity at 600 PSI. Motor is 1 1/2 HP, 24V, DC. Operates on either 12 or 32V, DC current. Has built-in relief valve adjustable to 1500 PSI. This unit ideal for boat tanks, hyd. lifts, port-a-toilets, etc. Cost Gov't approximately \$350.00.

### VICKERS HYDRAULIC TRANSMISSION

Self contained, 2 H.P., constant torque at all speeds with variable volume reversible, piston pump (controlled by outside lever) supplying piston hydraulic motor. Automatic pressure, dash pot for smooth control. Power output RPM - 0 to 1/3 input RPM in both directions. Input RPM 1800 continuous, 4000 intermittent. Dash pot can be removed for greater RPM. Ideal for lathes, duplicator set-up of mills, conveyors, small cars, drives, gearings, etc.

4" SPLINE SHAFTS for Input & power take-off 250 PR

Pulley Adapters - Bearing Block. Set \$20.00

40.00

### COMPLETE UNIT

### MOTOR 325

### GEAR BOX NEW 295

### USED 675

### MAKE YOUR OWN POWER UNIT

Here's a unit PACKED WITH BRUTE FORCE! Does all those hard, heavy jobs that ordinary Power Tools cannot handle. Easily made from a vacuum cleaner type motor, a gear reduction drive and a few homemade parts. Can be used for turning large nuts & bolts, digging post holes, drilling large holes in wood or metal, driving power tools, & machinery, lifting, pulling, pushing, or any job where a slow speed with high torque is required. YOU CAN'T STALL IT! Light weight, easy to handle. Has 1000's of uses in the home, garage, shop, factory. We supply complete instructions.

Order From This Ad. Pay by M.O. or check. P.O.'s accepted. from D&B firms. Deposit with C.O.D.'s. All Prices FOB Los Angeles.

## 230 PAGE CATALOG

1000's of ITEMS! Fully ILLUSTRATED! For the MECHANIC, SPORTSMAN, HOBBYIST, HOME OWNER, etc. War Surplus - Factory Closeouts and General Merchandise Values! Save on Hardware, Hand & Power Tools. Gadgets, Sports Equipment, Hydraulics, etc. SEND 25¢ FOR HANDLING & MAILING.



### RIGHT ANGLE SPINDLE DRIVE OR GEAR BOX

Has 18 3/4" stroke at 1 to 1 ratio. 7/8" input and take-off shafts may be shortened if desired. Input shaft has universal joint. Has a threaded mount stud with tapered roller bearing adaptable to swivel mount.

795

### 3 SPEED TRANSMISSION

Converts a high speed, slow power input into low speed, high power take-off. Has 2 take-off shafts at 4 to 1 and 16 to 1 ratios. Gear box has a worm drive, bronze gears and a throw-out clutch. Will operate in either forward or reverse directions. Adaptable to many uses on power machinery.

1995

### RIGHT ANGLE DRIVE

Has direct 1 to 1 ratio through 90° bevel gears. The drive and take-off shafts are 3/8" dia. Gears are self-lubricating, hi-speed steel. Ideal for use on power tools, flex drives, etc. Length 3 1/2", width 2 3/4", thickness 1 1/4". A Buy at

225

### ELECTRIC ACTUATOR

Fast Linear Actuator - Has hundreds of uses for any mechanical device needing controlled two way action. Will open, close, raise or lower doors, windows, gates, etc. Has 8500 RPM, 1/6 HP series wound motor. Operates on 24 V, DC current. Gives 4 1/2" stroke in 135 secs. Compression and tension loads up to 750 lbs. Has adjustable micro switch for limits of travel. The length retracted is 11 inches.

795

### GEAR HEAD MOTORS

Heavy duty, G.E. motor. 2 HP, 24V, DC, 125 amp., reversible motor to drive a reduction gear unit giving 36 to 1 ratio at take-off. Unit will operate on 6 or 12 volts.

1095

36 to 1 G.E. (300 shaft RPM)

28 to 1 Eclipse (130 shaft RPM)

30 to 1 Eclipse (110 shaft RPM) EACH

GHM-528 LEAR GEAR HEAD MOTOR - Lear 24 volt DC, 7.6 amp, series wound reversible motor with overload clutch. Motor turns 11,000 RPM driving thru a 10 to 1 gear reduction box which turns the final take-off shaft 1000 RPM. Adjustable limit switches control limit of travel. Take-off shaft adapts to flex or rigid drive. Size: 10" x 4".

995

### MAGNETIC BASE INDICATOR HOLDER

Time saver for precision checking. Magnetic base fits curved or flat surface. Has 45-50 lb. pull. 6 1/2" stainless steel rod which is mounted in ball socket to permit universal settings.

395

NOTE: We have complete line of instruments, depth gauges, inspection mirrors, etc. Write Today!

**PALLEY SUPPLY CO.**

# Precision Accuracy High Versatility

## SOUTH BEND 14" DRILL PRESS

Built to extremely close tolerances, this drill press is capable of the most exacting precision toolroom operations, yet it is ruggedly constructed to give long, dependable service on heavy production jobs. Exclusive features including built-in shielded work light, belt tension release, wide clamping rib under edge of table, and precision work surfaces add to its versatility, convenience and ease of operation. Made with  $\frac{1}{3}$  or  $\frac{1}{2}$  h.p. motor and standard spindle speeds 720 to 4325 r.p.m., it drills to  $\frac{1}{2}$ " in steel. Also floor models, multiple spindle models, and streamlined economy models. Write for catalog.

### Send For This Book!

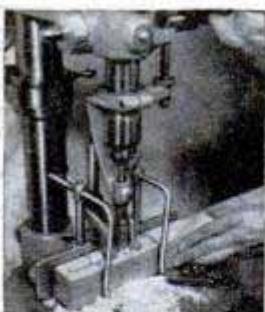
"How to Run a Drill Press"—Tells how to lay out work, set up jobs, sharpen drills, and use drill press attachments. Special classes of work such as drilling glass, buffing, mortising, etc., are included. Contains 32 pages and over 75 illustrations. Price postpaid 25 cents.



THESE ARE ONLY A FEW OF THE MANY  
SPECIAL JOBS YOU CAN DO—



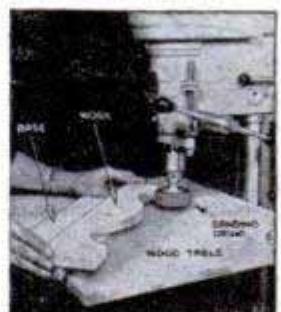
GRINDING



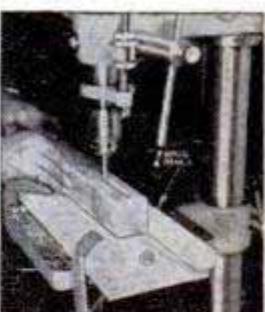
MORTISING



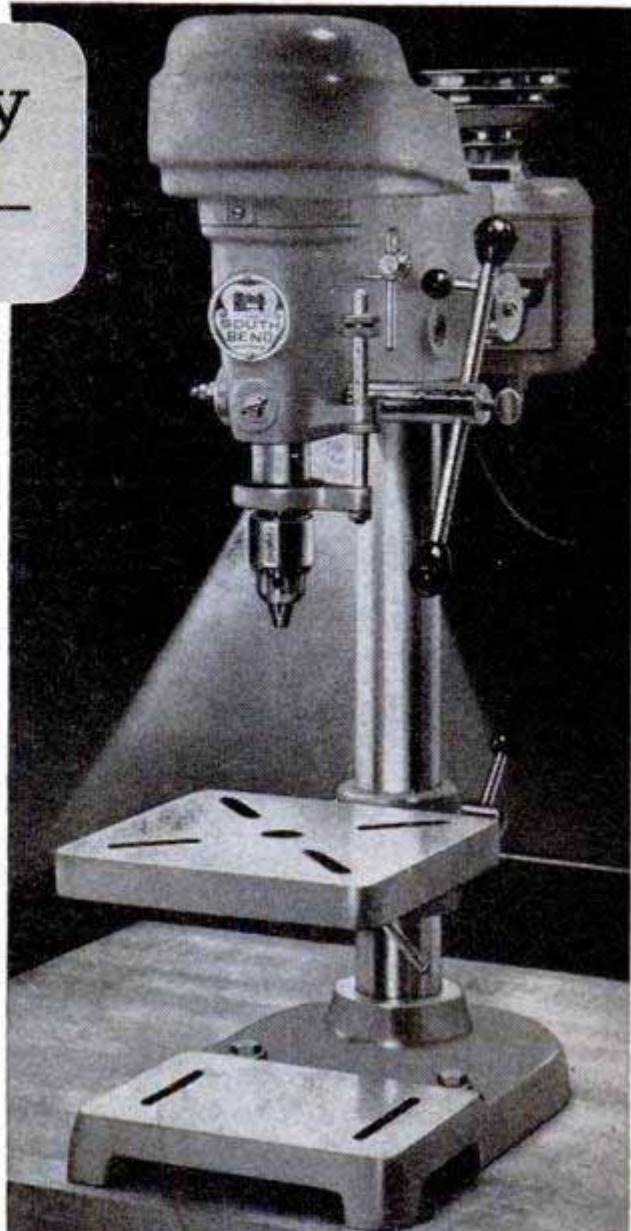
BUFFING



SANDING



ROUTING



14" Precision Model Bench Drill Press

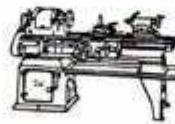
#### SEND INFORMATION

##### CHECKED:

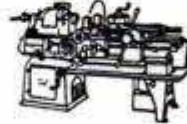
25c enclosed for copy of  
"How to Run a Drill Press."



9" and 10" BENCH LATHE



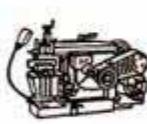
10" to 16-24" FLOOR LATHE



1/2" and 1" COLLET  
TURRET LATHE



14" DRILL PRESSES



7" BENCH SHAPERS

Name \_\_\_\_\_

Company \_\_\_\_\_

Street \_\_\_\_\_

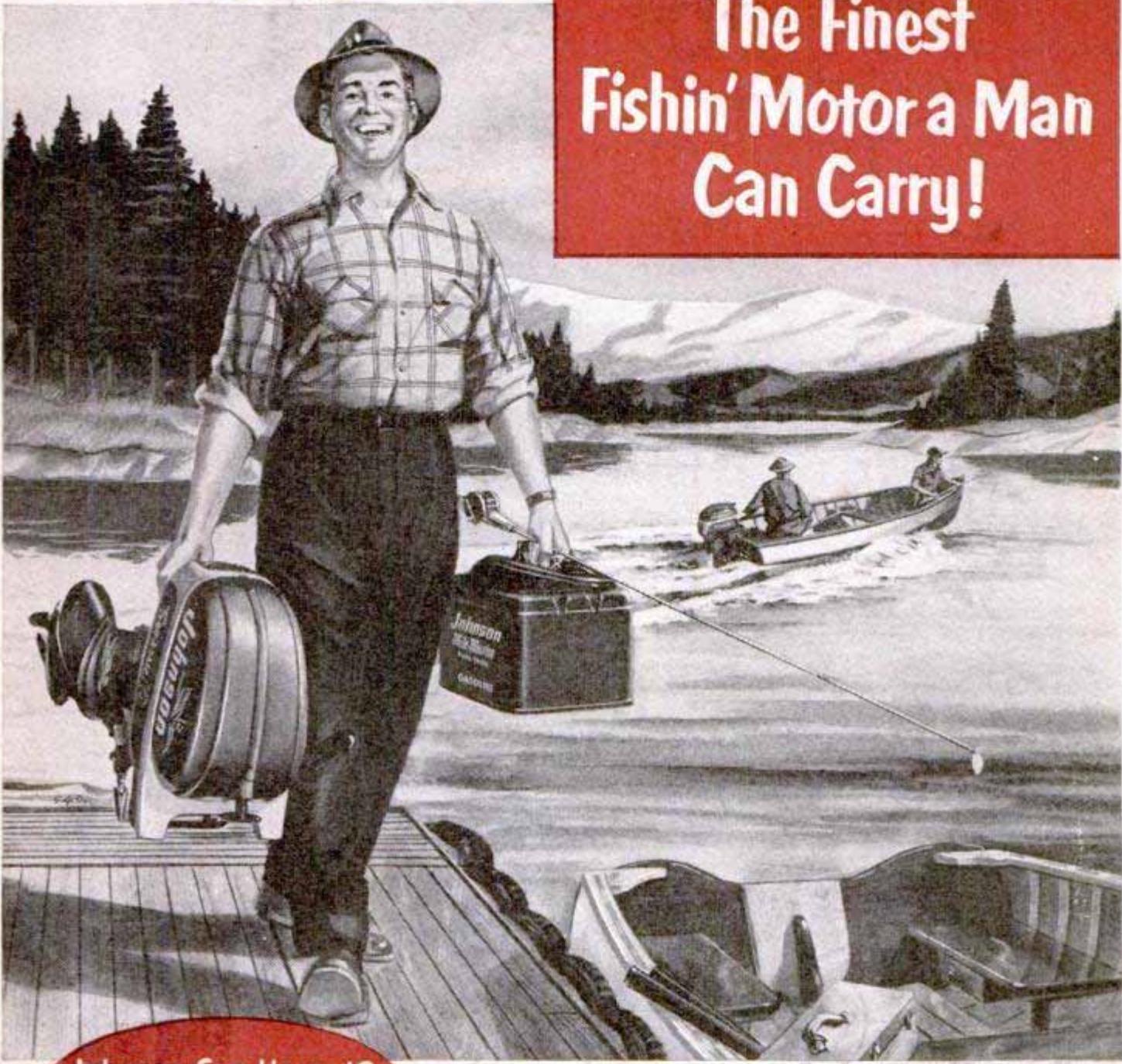
City & State \_\_\_\_\_



Building Better Tools Since 1906 • SOUTH BEND LATHE • South Bend 22, Indiana

TAKE A SEA-HORSE... TAKE A "10"

# The Finest Fishin' Motor a Man Can Carry!



Johnson Sea-Horse 10

**\$275<sup>00</sup>**  
FOB  
FACTORY

FOR 1953 —  
FOUR GREAT ALTERNATE FIRING TWINS

SEA-HORSE 3 — 3 hp. 32-lb. twin! . . \$145.00\*

SEA-HORSE 5 — 5 hp. Neutral Clutch. No shear pin! . . . . . \$187.50\*

SEA-HORSE 10 — 10 hp. King-Size Value! Dazzling performance! Only . . . . . \$275.00\*

SEA-HORSE 25 — 25 hp. Only 98 lbs.! Gear Shift. Mile-Master Fuel Supply System. Synchro Twist-Grip Speed Control . . . \$390.00\*

SHIP-MASTER REMOTE CONTROL — New. Hooks up in seconds to special fittings on "10" and "25" . . . . . \$29.50\*

Here's power to breathe new life into your boat—and performance features to make it sing! 10 horses. Light weight. Perfect trolling. Gear Shift. Mile-Master Fuel Supply System. Synchro Twist-Grip Speed Control. *Everything*—and all yours at a price that is making outboard news! See your Johnson Dealer. Look for his name under "Outboard Motors" in your classified phone book.

**Free Catalog!** Write for the big new Sea-Horse Catalog that describes the 4 great Johnsons for '53. SENT FREE!

**JOHNSON MOTORS, 400 Pershing Rd., Waukegan, Ill.**  
In Canada: Mfd. by Johnson Motors, Peterborough

**Johnson**  
**SEA-HORSES**  
FOR DEPENDABILITY



\*Prices f. o. b. factory, subject to change.  
OBC Certified brake hp at 4000 rpm.  
Weights are approximate.



THE ONLY MANUFACTURER WHO HAS BUILT A MILLION OUTBOARD MOTORS

# More people smoke **CAMELS**

than any other cigarette!



CHARLTON HESTON's newest movie is "PONY EXPRESS"



He is one of Hollywood's newest exciting stars.



Like so many stars, Charlton Heston is a Camel smoker.



*There must be a reason why* Camel is America's most popular cigarette. That reason can be only one thing: *greater smoking enjoyment!* What better evidence could there be that *you'll like Camels best, too?* Try Camels this sensible way: smoke them for 30 days and see how Camel's mildness and flavor please you pack after pack!

*Why did you change to Camels,  
CHARLTON  
HESTON?*

I'VE SMOKED MOST OF  
THE LEADING BRANDS  
AND FOUND THAT **CAMELS**  
SUIT ME THE BEST. I CAN  
COUNT ON THEM FOR  
MILDNESS AND FLAVOR  
EVERY TIME!



R. J. Reynolds Tobacco Co., Winston-Salem, N. C.

**Start your own 30-day Camel Mildness Test today!**